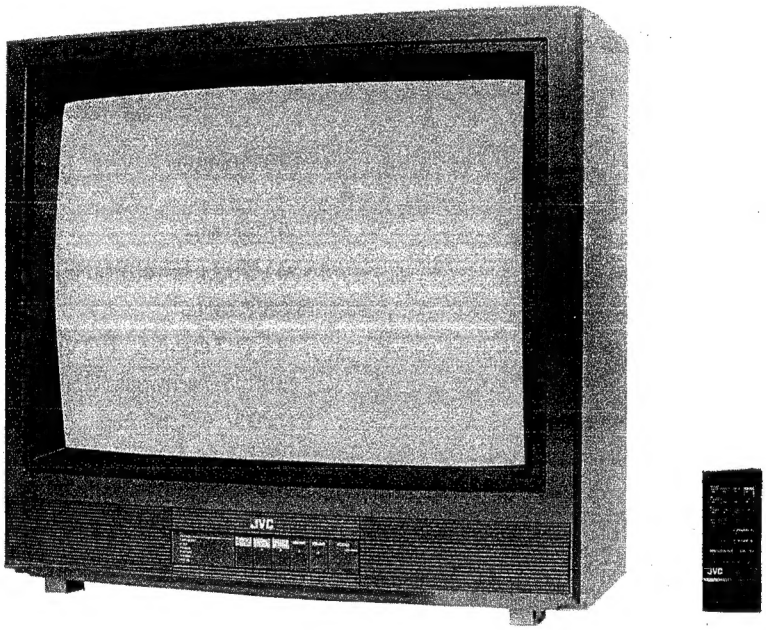
C-2627

# JVC

# SERVICE MANUAL

## 28" COLOR TV

## MODEL C-2627 (CA)



## ■ SAFETY PRECAUTION

**As for safety precautions including electric shock prevention, use of designated components, or safety inspection after servicing, refer to the appended NTSC.**

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* With SHCEMATIC DIAGRAM and SERVICE ADJUSTMENT (NTSC)



No. 50002
Jul. 1987

# I. SPECIFICATIONS

| | |
|---|---|
| Dimensions | 67.0 cm(W) x 54.5 cm(D) x 63.4 cm(H) |
| Weight | 37 kg |
| GND | Only LIVE GND |
| TV System and Color System | |
| TV RF System | CCIR(M) |
| Color System | NTSC |
| TV Receiving Channels and Frequency | |
| VL Band (02 ~ 06) | 54 MHz ~ 88 MHz |
| VH Band (07 ~ 13) | 174 MHz ~ 216 MHz |
| UHF Band (14 ~ 69) | 470 MHz ~ 806 MHz |
| CATV Receiving Channels and Frequency | |
| Low Band (02 ~ 06, A-8 ~ A-6) by (02 ~ 06 & 01, 93, 94) | 54 MHz ~ 474 MHz |
| High Band (07 ~ 13) by (07 ~ 13) | |
| Mid Band (A ~ I) by (14 ~ 22) | |
| Super Band (J ~ W) by (23 ~ 36) | |
| Hyper Band (W+1 ~ W+29) by (37 ~ 65) | |
| Sub Mid Band (A-5 ~ A-1) by (95 ~ 99) | |
| On screen channel indication | 02 ~ 13, 14 ~ 69 channels (TV) |
| | 01 ~ 65, 93 ~ 99 channels (CATV) |
| TV/CATV Total Channel | 128 channels |
| Intermediate Frequency | |
| Video IF Carrier | 45.75 MHz |
| Sound IF Carrier | 41.25 MHz (4.5 MHz) |
| Color Sub Carrier | 3.58 MHz |
| Antenna Input Impedance | 75 Ω Terminal, F-Type Connector (VHF) |
| | 300 Ω Terminal (UHF) |
| Power Input | 120 V AC, 60 Hz |
| Input Current | 1.7 A |
| Picture Tube | 28" In-Line Type, Full-Square Tint Tube |
| Viewable Picture Size | 52.8 cm(W) x 39.6 cm(H) |
| High Voltage | 28.0 kV ±1 kV (at zero beam current) |
| Speaker | 8 x 12 cm Oval Type, 8 Ω |
| Audio Power Output | 2.5 W |
| Tube | 1 |
| IC | 11 (In TV), 1 (In Remocon) |
| Transistor | 19 (In TV), 3 (In Remocon) |

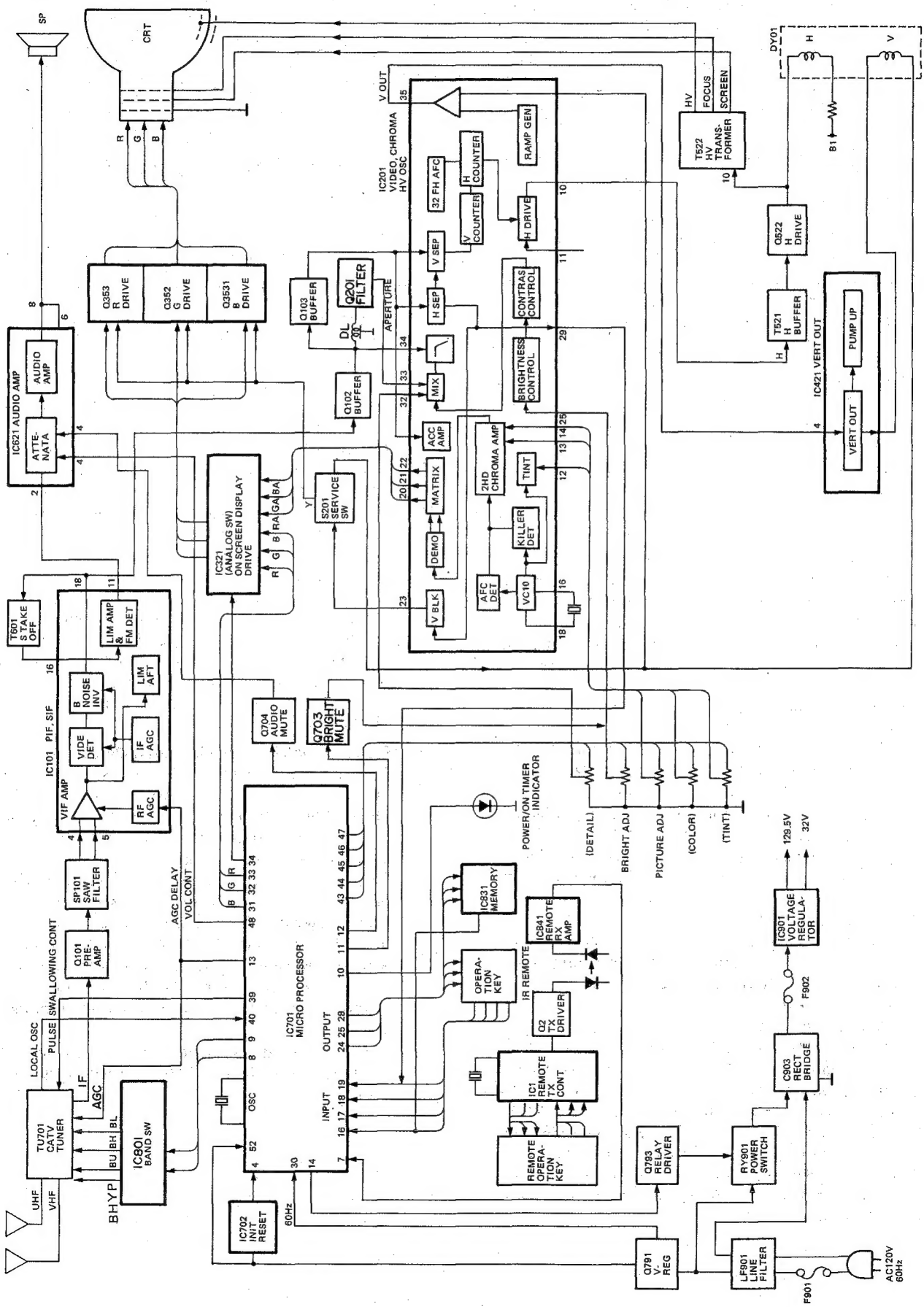
(Design and specifications subject to change without notice)

# II. FEATURES

1. New chassis design enables use of a single board with simplified circuitry
2. Provided with miniature tuner (TV/CATV)
3. PLL synthesizer system TV/CATV totaling 128 channels
4. Deletion of user VR by master command and increased features possible simultaneously
5. Multifunctional remote control permits picture adjustment
6. Off-timer for setting time up to 9 hrs., 59 min. (with display of remaining time)
7. On-timer for setting time up to 9 hrs., 59 min. (with display of remaining time)
8. With Clock Display On Screen

# III. OUTLINE

## ■ BLOCK DIAGRAM



## ■ Circuit Analysis

★ This color television set, using a frequency synthesizer system, is provided with a 1-chip microcomputer having channel display (on the screen), remote control and On/Off-timer functions (JVC custom high-integration PLL incorporated). Interior construction in includes the following blocks: (1) remote control, (2) control, (3) reception, (4) picture amplification/sound detection, (5) picture/chroma, (6) sound, (7) deflection, (8) high voltage, and (9) power supply. These nine blocks are described as follows.

### 1 Remote Control

Remote control function includes power supply switching, volume adjustment, and channel selection conducted by utilizing near-infrared rays, and thus eliminating wiring. The transmitter, using an IC1 (M50463P), offers 26 functions that include power supply switching by digital code, outputs from pin (23), and drives Q1 and Q2. Data is transmitted from the near-infrared-ray, light-emitting diode D1 (LN66-S).

Transmitted signals are received by the photo diode D841 (PD49PI) on the TV set and input in pin (8) of the remote control amplifier IC841 ($\mu$PC 1490HA).

Input signals are amplified, and after waveform shaping, are output from pin (2).

### 2 Control

To perform overall control of this Model the control unit is composed of a 4-bit 1-chip microcomputer, IC701 (MN15266JMC-1), memory, IC831 (MN12C 25), reset pulse generator, and IC702 (MN1280-K). When the set is turned on, initial conditions of the microcomputer are determined by the output pulse of IC702 pin (3), and the program incorporated in the microcomputer is started. This microcomputer has the following functions:

a) Control key input

Key scanning is performed in the matrix of the output signals of IC701 pins (24), (25), (26), (27), and (28) and the input terminals of pins (16), (17), (18), and (19). Data for selection is memorized in IC831 (MN12C25). Selection is performed by a key scan signal; selected data is output from pin (9) and input into the microcomputer.

b) Real time

The microcomputer has a clock function using a frequency of the commercial power supply. Input taken in from IC701 pin (30) is processed in the microcomputer.

c) Character output

The character output function is designed to display characters such as channel Nos. Characters and display locations are controlled and memorized by the microcomputer. Signals are output from IC701 pin (31), (32), (33), and (34), and input in the on screen display drive circuit. Horizontal and vertical signals, input from pins (49) and (50), are synchronously processed in the microcomputer.

d) Receiving circuit control

Reception and selection are performed by the microcomputer controlling tuner TU701 and VCO/band selector switch IC801. In control, a receiving frequency is determined by the active filter of IC801 ($\mu$PC1486C) integrating the charge pump output of IC701 pin (38) and adding the result to the tuner. Further, IC701 pin (40) receives prescaler output from the tuner, and pin (39) outputs a prescaler control signal. Stations are selected by inputting from IC801 (1) and (2) data that is output from IC701 (8) and (9), and outputting it to the tuner via the decoder circuit.

e) Analog signal control

IC701 has eight 6-bit A/D converters used to control volume, color, brightness, etc. Control signals are output from detail – pin (43); brightness – pin (44); picture – pin (45), color – pin (46); and tint – pin (47).

f) Others

Power supply switching is controlled by signals output from IC701 pin (14) of the microcomputer. Also, as to functions, control signals are output from audio mute pin (12) and picture mute pin (11).

### 3 Reception

The receiver is composed of CATV tuner TU701 (AN7042EP) and IC801 ($\mu$PC1486C). From the tuner, a prescaler dividing signal is input into IC701 pin (40) for PLL control. From IC701 pin (39), a prescaler control signal is output and applied to the tuner. For band switching, a band signal for the channel chosen is output from IC701 pins (8) and (9), input for decoding in IC801 pins (1) and (2). Then, it is output from pins (13) and (15) and (14), (16), and input into the control input terminals of the tuner. The received signal is output from the tuner IF output terminal and delivered to the succeeding IF amplifier.

### 4 Picture Amplification and Sound Detection

The IF signal, via the SAW filter SF101 (CE40953-201), is input into IC101 (M51346AP) pins (4) and (5) of the VIF amplifier. Via the VIF amplifier, limiter, and video detector circuit in the IC, the signal is output as a video signal from pin (18). This output, representing the level of the received signal, is fed back as data to IC701 and used as a reception control signal. This signal is also input in pin (16) via the filter of CF601 (A74603-C). IC101 is provided with an FM detector circuit and an attenuator to provide sound output from pin (9). This sound output is forwarded to the succeeding sound amplifier circuit.

* On this Model a sound output is obtained from pin (11) and delivered to the succeeding attenuator.

**5 Picture/Chroma**

The picture/chroma block composed of IC201 (TA 8601AN) and peripheral circuits, receives control signals from the microcomputer of IC701. IC201 comprises video, chroma, and deflector circuits. The video circuit, with a differential picture sharpness circuit, also comprises picture control, pedestal-clamp-fitted brightness control, and internal vertical blanking functions. Through detail signal input in the filter and IC201 pin (32), the video signal is input into IC201 pin (34) and delivered to the mixer circuit with its picture sharpness function. Output of the mixer circuit is emitted as brightness signal -Y from pin (23) via contrast control and brightness control circuits. The contrast control circuit is controlled by the brightness signal from pin (25). The chroma signal is input into pin (31) via Q103. Via the ACC amplifier, the chroma amplifier, the demodulation circuit, and the matrix circuit, pin (20) R-Y, pin (21) G-Y, and pin (22) B-Y signals are output. Pin (14) picture and pin (13) color control signals are input into the chroma amplifier.

**6 Sound**

The sound amplifier consists of IC621 (AN5265), comprising an attenuator and an audio amplifier circuit, and receives the sound signal from IC101 via pin (2).

For attenuator control, used is an electronic volume designed to be adjusted by the analog voltage output if IC701 pin (48). Sound output amplified and driving the speaker is supplied from pin (8).

**7 Deflection**

Deflection is performed by the circuit incorporated in IC201 (TA8601AN). This IC comprises a synchronous separator, vertical synchronous, horizontal drive output, X-ray protector, and vertical NFB amplifier circuits.

The vertical synchronous signal is input in pin (5) via the separator circuit, controlling the vertical signal generating counter, output from pin (35), and input into pin (4) of the IC421 (AN5521) vertical output IC, while a pulse to drive yoke coil DY01 is output from pin (2). For the horizontal signal, the oscillating clock signal of IC201 pin (8) is output from pin (10) via the interior horizontal counter and the horizontal driver.

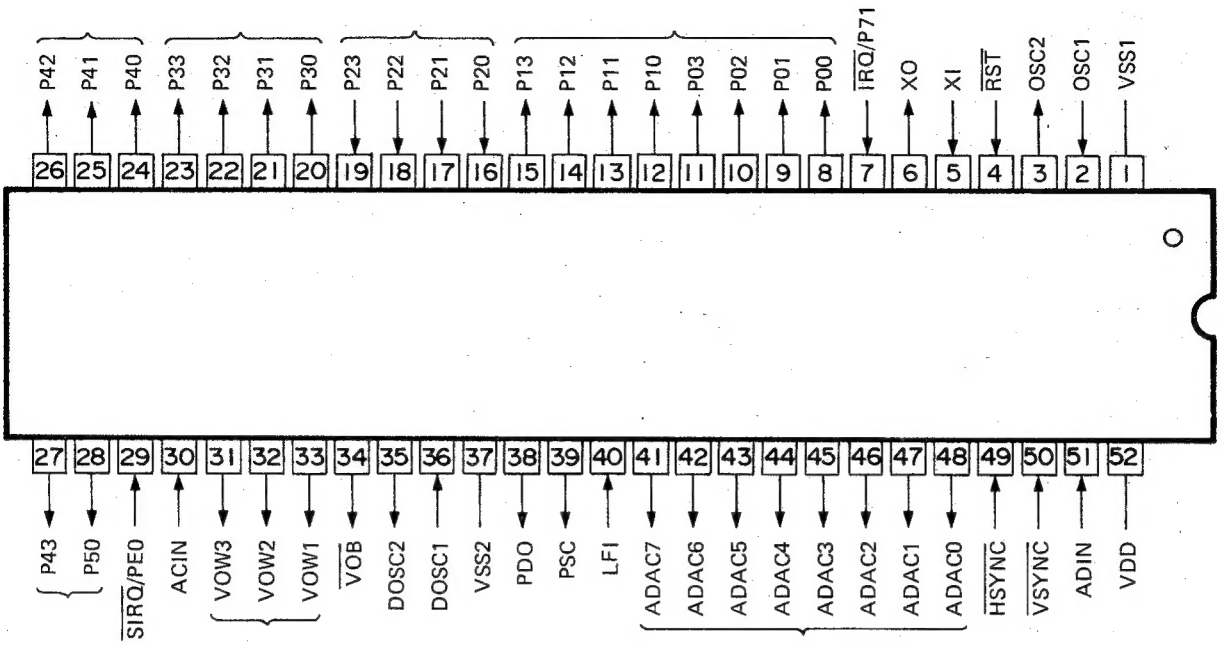
**8 High Voltage**

A high voltage of about 28 kV must be applied to the anode of the picture tube. To obtain this high voltage, a high-voltage transformer is installed in parallel with the horizontal deflection yoke. Also, high-voltage transformer T522 is used to provide a low +B, CRT heater and vertical output circuit-applied voltages, and to pick out horizontal pulses. If voltage higher than the setting is caused by a fault in the high-voltage circuit, resistor RB507 and zener diode D503 detect such trouble. A trouble signal is input in IC201 pin (11), causing the X-ray protector circuit to interrupt the horizontal deflector circuit.

**9 Power Supply**

The power supply circuit constantly feeds about 5 V to IC841 and IC701 from Q791. From IC701 pin (14) output of the microcomputer, relay RY901 is controlled to enable power to be supplied to the HVT and other circuits. The power supply circuit feeds 129.5 V regulated in IC901 to those parts concerned from pin (4).

## • IC701 SENSOR CONTROL/MICRO PROCESSOR IC

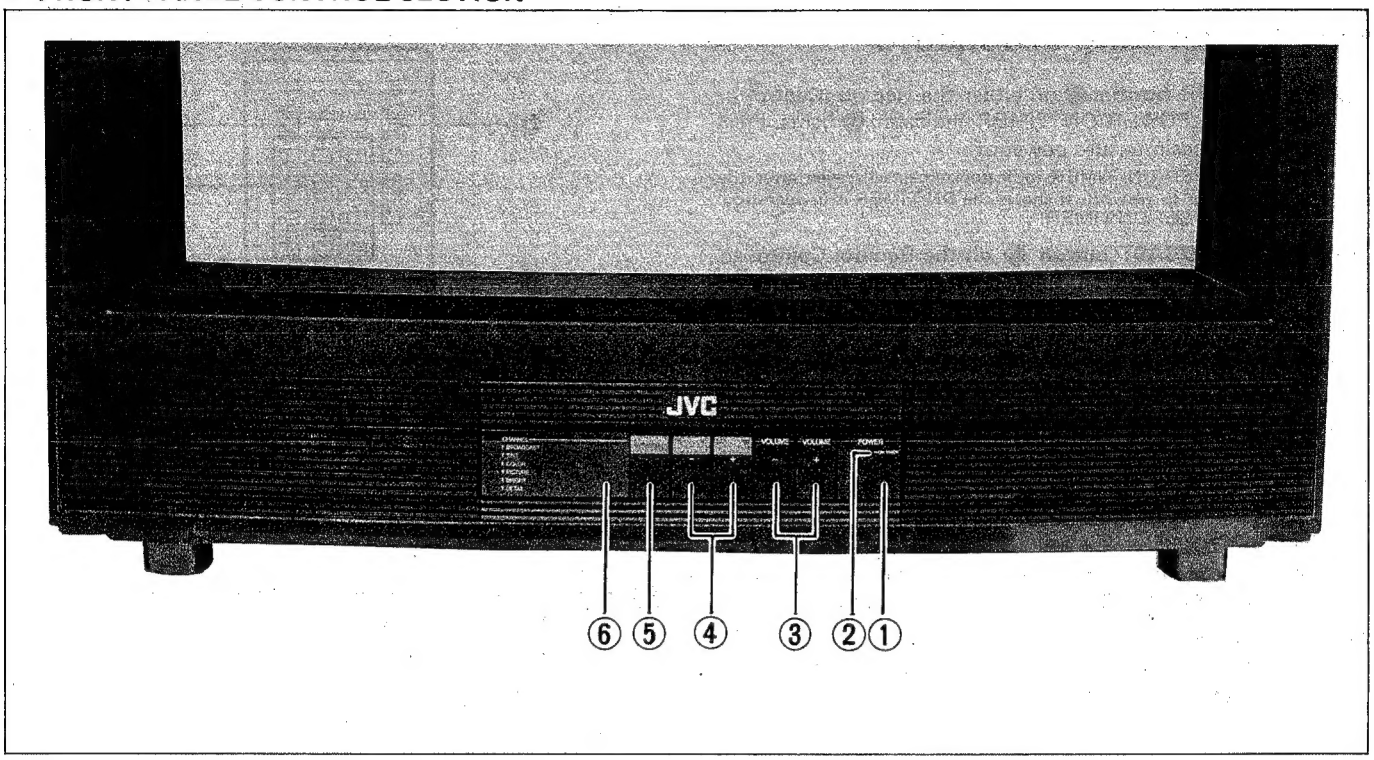



## PIN FUNCTIONS

| Pin No. | Code | Name | Function |
|---|---|---|---|
| 1 | VSS1 | GND terminal | To connect the ground (0 V). |
| 2<br>3 | OSC1<br>OSC2 | Oscillating terminal | To oscillate the system clock by connecting the oscillating element to the capacitor. Feedback resistor installed between OSC1 and OSC2. |
| 4 | $\overline{RST}$ | Reset signal input terminal | Resetting is effected by inputting the "L" level for more than 1 machine cycle. Pull-up resistor optional. |
| 5<br>6 | XI<br>XO | Oscillating terminal | To oscillate the time clock by connecting the oscillating element to the capacitor. Feedback resistor installed between XI and XO. |
| 7 | $\overline{IRQ}$/P71 | Interruption signal input terminal | By inputting a negative edge signal, interruption of program control is accepted. The input terminal level can be monitored by the interior port. Pull-up resistor optional. |
| 8 ~ 15 | P00 ~ P13 | Parallel data output terminal | Output port for 4-bit parallel data 12 V-level, high-voltage-proof N-channel open drain output. Optional push/pull available |
| 16 ~ 19 | P20 ~ P23 | Parallel data input terminal | Input port for 4-bit parallel data. Pull-up resistor optional. |
| 20 ~ 23 | P30 ~ P33 | Parallel data input/output terminal | Input/output port for 4-bit parallel data. Serves as a push/pull output port in the output mode. |
| 24 ~ 28 | P40 ~ P50 | Parallel data output terminal | Push/pull output port for 4-bit parallel data. |
| 29 | $\overline{SIRQ}$/PE0 | Interruption signal input terminal | When a negative edge signal is input, interruption of program control is accepted. The input terminal level can be monitored by the interior port. Pull-up resistor optional. |
| 30 | ACIN | Input terminal | Real-time counter reading AC input terminal. |
| 31 ~ 33 | VOW3 ~ VOW1 | Display signal output terminal | Character-generator character signal output terminal. VOB is background output. |
| 34 | VOB | | |
| 35<br>36 | DOSC2<br>DOSC1 | Oscillator terminal | Clock oscillator terminal for character generator. (LC oscillation) |
| 37 | VSS2 | GND terminal | To connect the ground (0 V). (for CRT) |
| 38 | PDO | PD output terminal | Output terminal for VCO control. Used by converting to DC with exterior LPF. |
| 39 | PSC | Control output terminal | Prescaler control output terminal. |
| 40 | LFI | LF input terminal | Input terminal from prescaler. |
| 41 ~ 48 | ADAC7 ~ ADAC0 | DAC output terminal | Output terminal for volume DAC. Coupled to low-pass filter. 12 V-level, high-voltage-proof N-channel open drain output. |
| 49<br>50 | $\overline{HSYNC}$<br>$\overline{VSYNC}$ | Synchronous input terminal | Horizontal/vertical synchronous signal input terminal for character generator. |
| 51 | ADIN | Input terminal | AD-converted voltage input terminal. |
| 52 | VDD | Power supply terminal | To connect +4.5 ~ 5.5 V. |

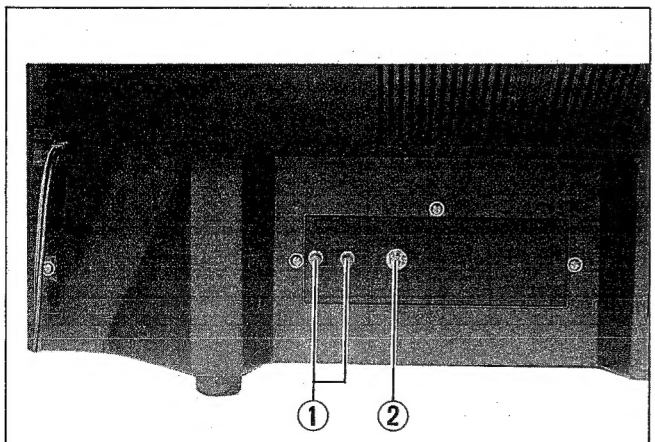
# Ⅳ. FUNCTIONS

## ■ FRONT PANEL CONTROL SECTION



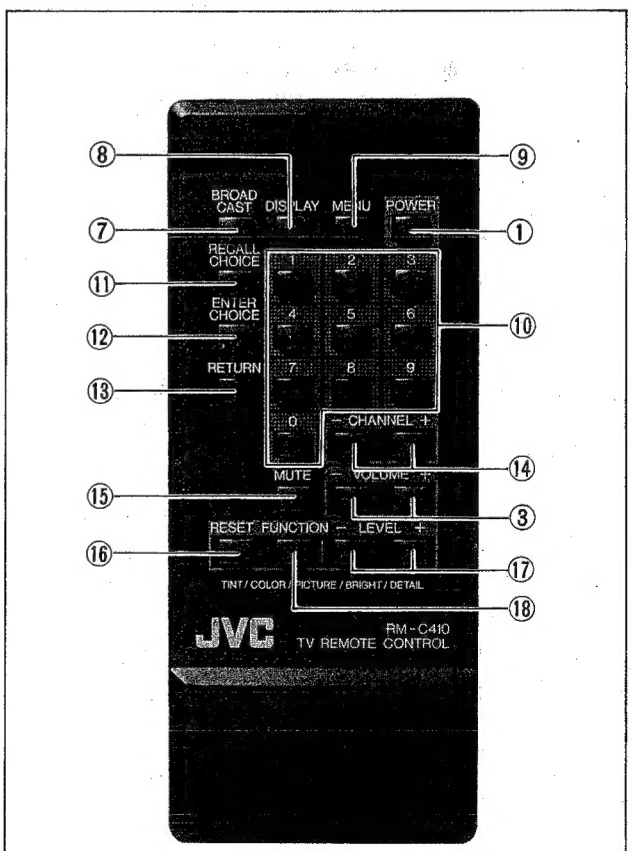

① POWER button
② POWER/ON TIMER indicator
③ VOLUME (-/+) buttons
④ LEVEL/CHANNEL(-/+) buttons
⑤ FUNCTION button
⑥ Remote Control Sensor
⑦ BROADCAST button
⑧ DISPLAY button
⑨ MENU button
⑩ 10-Digit Keypad
⑪ RECALL CHOICE button
⑫ ENTER CHOICE button
⑬ RETURN button
⑭ CHANNEL (-/+) buttons
⑮ MUTE button
⑯ RESET button
⑰ LEVEL(-/+) buttons
⑱ FUNCTION button (Remote Control)

## ■ REAR TERMINAL




① UHF ANTENNA TERMINAL
② VHF ANTENNA TERMINAL

## ■ REMOTE CONTROL SECTION



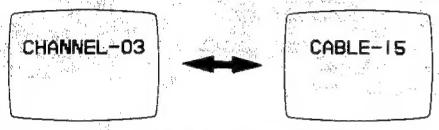
# TV OPERATION

## Basic Operating Procedure

**1** **Press POWER button ❶** on either the Remote Control or front panel. POWER/ON TIMER indicator ❷ lights. Press this button again to turn power off.

**Note:** If POWER/ON TIMER indicator remains lit even after the power is turned off, it shows the ON TIMER is in operation. See "5. SET ON TIMER".

**2** **Press BROADCAST button ❼** on the Remote Control to select the mode. Each time it is pressed, the mode is switched between "CHANNEL" and "CABLE".
When connected to an antenna, select "CHANNEL" mode for normal VHF/UHF reception. When connected to cable TV, select "CABLE" mode. The on-screen display will show the following:



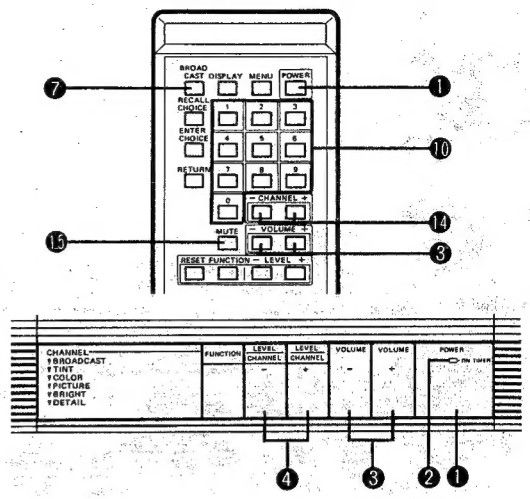

**Note:** For mode selection using the front panel controls, see "FUNCTION BUTTON" on next page.

**3** **Select desired channel** using CHANNEL (-/+) buttons ⓮ on the Remote Control (or LEVEL/CHANNEL (-/+) buttons ❹ on the front panel). Pressing the (+) button advances to higher channels, (-) button to lower channels.

**Note:** Certain channels have been preset at the factory. It may be necessary to add or erase some channels in your area. See "3. CHANNEL MEMORY" on page 11 for presetting channels.

- Channels can be selected directly by using 10-Digit Keypad ⓾ on the Remote Control.
  Remember to press 2 numbers when selecting.
  For example: if you select channel 5, press "0" first, then press "5". When selecting cable channels, refer to the CABLE TV CHANNEL CONVERSION CHART below.

**Note:** When a video source such as a VCR is connected to the antenna terminal to be viewed on Channel 3 (or Channel 4), sometimes channel selection may result in an unclear or distorted picture. In this case, re-select Channel 3 (or 4) by pressing "03" (or "04") of 10-Digit Keypad and the picture will become clear.




**4** **Press VOLUME (-/+) buttons ❸** on either the Remote Control or front panel to adjust volume to your desired listening level. Pressing the (+) button will make the sound louder, the (-) button will make it softer. The volume level is indicated on the screen by reference number (00 – 50) and by bar scale as shown.

**Note:** The volume level can be made minimum instantly by pressing the MUTE button ⓯ on the Remote Control. See "MUTE Button".

**On-screen Display**

- Once the on-screen display appears on the screen, it disappears in few seconds. (Only the clock time can be kept displayed on the screen. See "DISPLAY Button".)
- When tuned to a channel where no program is being broadcast, the on-screen display may be unclear or blurred.

## CABLE TV CHANNEL CONVERSION CHART

In addition to normal TV reception from an antenna for VHF (Channels 2 – 13) and UHF (Channels 14 – 69), your TV set is equipped to receive non-scrambled cable TV channels. Sub-Mid band (A-8 – A-1), Mid band (A – I), Super band (J – W) and Hyper band (W+1 ~ W+29) can be received by using the channel selections as shown in the following chart.

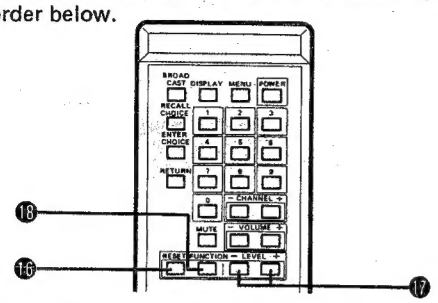
| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V |
| ** | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
| * | W | W+1 | W+2 | W+3 | W+4 | W+5 | W+6 | W+7 | W+8 | W+9 | W+10 | W+11 | W+12 | W+13 | W+14 | W+15 | W+16 | W+17 | W+18 | W+19 | W+20 | W+21 |
| ** | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 |
| * | W+22 | W+23 | W+24 | W+25 | W+26 | W+27 | W+28 | W+29 | A-8 | A-7 | A-6 | A-5 | A-4 | A-3 | A-2 | A-1 | | | | | | |
| ** | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 01 | 05 | 06 | 95 | 96 | 97 | 98 | 99 | | | | | | |

* : Regular cable channel designations
**: Your TV set's corresponding on-screen CABLE channel numbers

# FUNCTION BUTTON

The FUNCTION button on the front panel selects the control modes for TV operation and picture adjustment.

- Press FUNCTION button ❺ on the front panel to select the desired control mode. Each time the FUNCTION button is pressed, the on-screen display shows the selected control mode in the order below.

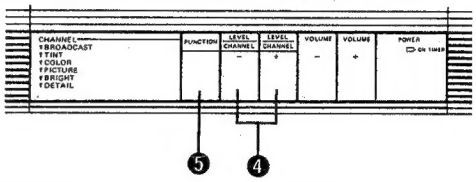


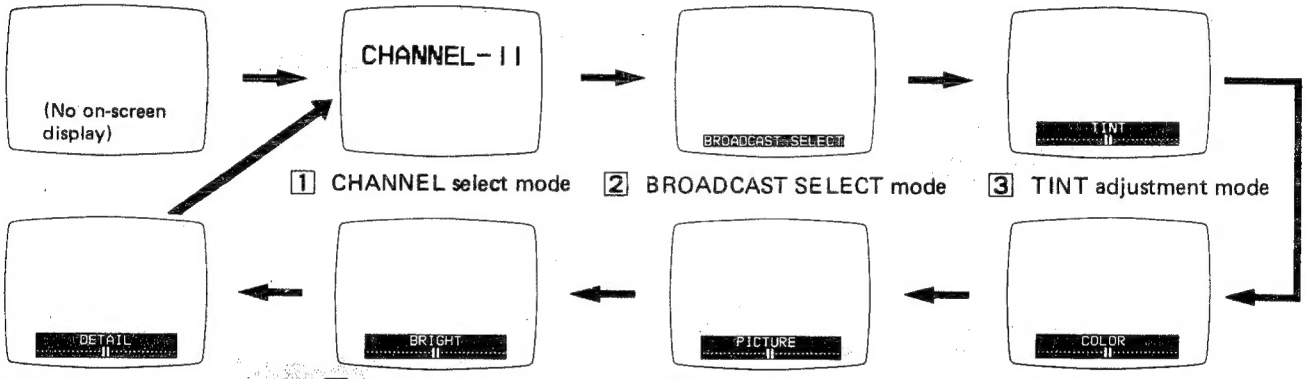

**Note:** The Remote Control's FUNCTION button ⓲ selects **only picture adjustment modes: TINT, COLOR, PICTURE, BRIGHT and DETAIL.** The other control modes can be selected directly with the Remote Control's respective buttons.

- After selecting the desired mode, press LEVEL/CHANNEL (-/+) buttons ❹ on the front panel or LEVEL (-/+) buttons ⓱ on the Remote Control while the selected mode indication is being displayed to make your preferred adjustment. Remote Control LEVEL buttons control **only picture adjustments.**

**Notes:** ●When using the front panel buttons, before the FUNCTION button is pressed the first time with nothing displayed on the screen, the TV is in the "CHANNEL" mode. Therefore, in this mode, channel selection is possible by pressing LEVEL/CHANNEL buttons ❹ on the front panel.

●After completing picture adjustments from the Remote Control selecting either LEVEL button ⓱ will return directly to the last chosen adjustment mode.




1 CHANNEL select mode | 2 BROADCAST SELECT mode | 3 TINT adjustment mode

7 DETAIL adjustment mode | 6 BRIGHT adjustment mode | 5 PICTURE adjustment mode | 4 COLOR adjustment mode

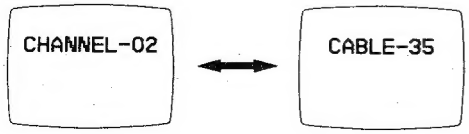
## 1 CHANNEL select mode

In this mode, press LEVEL/CHANNEL (+) button ❹ on the front panel to advance to higher channels, and (-) button for lower channels.

(The screen illustrations on the right show the case when the TV is in the "CHANNEL" mode. When in the "CABLE" mode, the "CABLE" indication appears instead of "CHANNEL".)

## 2 BROADCAST SELECT mode

In this mode, press LEVEL/CHANNEL (-/+) buttons ❹ on the front panel to change the BROADCAST mode between "CHANNEL" (for regular UHF/VHF channels) and "CABLE" (for cable channels).

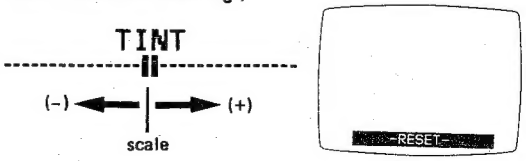



## 3 – 7 Picture adjustment modes

In these modes, an adjustment scale with a marker appears on the screen. Press LEVEL/CHANNEL (-/+) buttons ❹ on the front panel or LEVEL buttons ⓱ on the Remote Control to fine adjust each item to your preference according to the chart below.

| (-) | LEVEL | (+) |
|---|---|---|
| Reddish | TINT | Greenish |
| Subdued | COLOR | Vivid |
| Light | PICTURE | Strong |
| Dark | BRIGHT | Bright |
| Soft | DETAIL | Sharp |

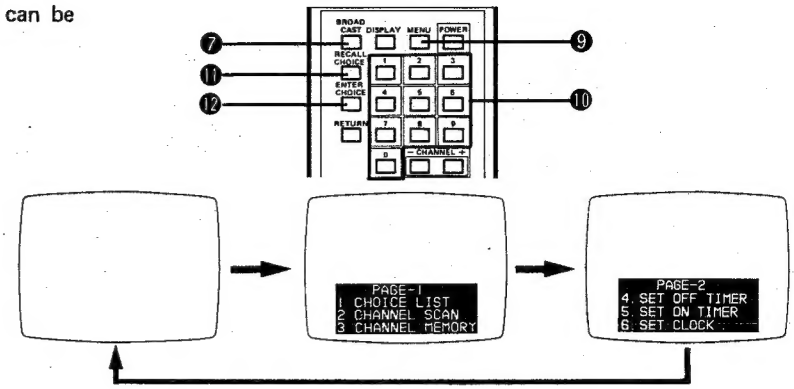
**Note:** Pressing the RESET button ⓰ on the Remote Control restores all adjustment modes to their scale's center position. (The center position is only a reference level, rather than a standard setting.)



# MENU BUTTON

The "MENU" button selects a list of functions that can be programmed for operating the TV more conveniently.
This function is possible only on the Remote Control.

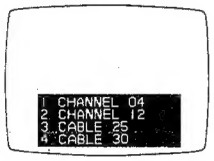
- Press MENU button ❾ on the Remote Control to display the list of programmable convenience functions on the screen.
  The "MENU" consists of 2 pages. Press the MENU button repeatedly to display the pages in the sequence on the right.
- Press numbers "1" through "6" on 10-Digit Keypad ❿ to select the corresponding function in the numbered "MENU".




## PAGE-1

### 1. CHOICE LIST

With "PAGE-1" MENU displayed on the screen, press "1" of 10-Digit Keypad ❿ to display four CHOICE channels on the screen.
Four numbers for presetting CHOICE channels will appear on the screen as shown. Follow "Presetting CHOICE Channels" instructions below to preset the 4 CHOICE channels.



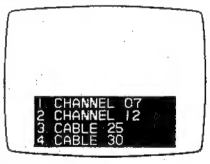

**Note:** Some CHOICE channels may already be preset at the factory.
If you have previously preset the CHOICE channels, the 4 preset CHOICE channels will appear on the screen and you can select your CHOICE channel for immediate viewing by pressing the corresponding number, "1" through "4", on the 10-Digit Keypad.
If you wish to reset any of the 4 CHOICE channels, follow the instructions below.

#### Presetting CHOICE Channels

1) While in the channel select mode (either "CHANNEL" or "CABLE" mode), determine the channel you wish to preset as a CHOICE channel and display it on the screen.
(For example: press "0" and "7" to display "CHANNEL 07".)

2) Press ENTER CHOICE button ⓬.
"SET CHOICE NO. -" and "CHANNEL-07" (channel number you have just selected) will appear on the screen.

3) Press a number (1 — 4) on 10-Digit Keypad ❿ for the CHOICE channel number you wish to preset.
   - For example:
     If you select No. "1" CHOICE channel, "1. CHANNEL 07" appears on the screen when you check the CHOICE LIST to confirm your "CHOICE 1".




4) Repeat steps 1) through 3) to preset up to 4 CHOICE channels.

#### RECALL CHOICE Button

- Simply press RECALL CHOICE button ⓫ anytime you want to call up the CHOICE LIST of preset CHOICE channels for convenient direct CHOICE channel selection.
- While the CHOICE LIST is on the screen, press the corresponding number of 10-Digit Keypad ❿ to select the preferred channel.

### 2. CHANNEL SCAN

1) With "PAGE-1" MENU displayed on the screen, press "2" of 10-Digit Keypad ❿.
   - All memorized channels (either "CHANNEL" or "CABLE" mode) will now scan sequentially in ascending order beginning with the channel that the TV is tuned to. Scanning will stop automatically when the original channel is reached. "STOP" appears beneath the channel number to show the CHANNEL SCAN mode has finished.

2) Press any button on the Remote Control, if you wish to stop scanning at a certain channel before the original channel is reached.
To resume scanning, press MENU button ❾ and then "2" on 10-Digit Keypad ❿.

**Notes:**

- When the TV is in the "CABLE" mode, the "CABLE" indication appears on the screen instead of "CHANNEL".
- For changing memorized channels, see next section "3. CHANNEL MEMORY".
- If you wish to start CHANNEL SCAN at a specific channel, first select the BROADCAST mode then that channel number, and then follow instructions above.
- While actual CHANNEL SCAN is being performed, all front panel buttons become inoperable.

### 3. CHANNEL MEMORY

Some channels have been preset at the factory. To change the memorized (preset) channels to match the TV broadcasts (or cable channels) of your area, perform the following:

1) First press BROADCAST button ❼ to select either "CHANNEL" or "CABLE" mode.
2) With "PAGE-1" MENU displayed on the screen, press "3" of 10-Digit Keypad ⓾.
   The following message will appear on the screen. The bottom line shows the channel to which the TV is tuned.

3) Press "1" (ADD) to add this channel in memory.
   A bar "–" will momentarily appear between the broadcast mode (CHANNEL or CABLE) and the channel number and the displayed channel number advances automatically to show the channel is memorized.
4) Press "2" (ERASE) to erase this channel from memory, if you do not wish to preset it in memory or if no TV station is broadcasting on it.
   The bar between the broadcast mode and channel number will disappear and the displayed channel number automatically advances immediately to show the channel is no longer in memory.
5) Press "3" (KEEP) to maintain the channel's present status (either memorized or not) then, the displayed channel number also advances automatically.
6) Repeat steps 3) through 5) for all the channels.
7) Press "4" (END) when you have stored all required channels in memory.
8) When you wish to preset channels of the other BROADCAST mode, select the mode first, then repeat steps 2) through 7).

**Notes:**

- Perform each necessary operation above while the message is displayed on the screen.
- When you wish to "ADD" or "ERASE" a specific channel, first select the BROADCAST mode and that channel number, then follow steps 2) through 7).
- After presetting all the channels you need, when you perform CHANNEL SCAN, the TV sweeps only the channels you have stored in memory.

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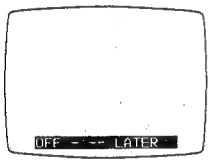
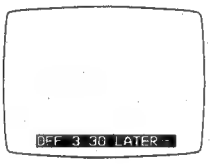
## PAGE-2

### 4. SET OFF TIMER

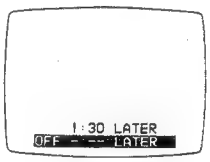
The "OFF TIMER" feature allows you to turn off your TV automatically after a preset time of up to 9 hours 59 minutes.

1) With "PAGE-2" (or "PAGE-1") MENU displayed on the screen, press "4" of 10-Digit Keypad ⓾.




2) Press the numbers on the Keypad to set the desired period of time before switch-off. For example, if you want the TV to switch-off automatically after 3-1/2 hours have passed, press "3", "3", and "0". The selected period of "3:30" will appear on the screen to indicate your OFF TIMER setting. The OFF TIMER can be set for up to 9 hours 59 minutes.
3) To reset the OFF TIMER or to check the remaining time, press MENU button ❾ and select "4. SET OFF TIMER" on PAGE-2. The on-screen display will show:




   Then, press the appropriate numbers as in step 2) above to reset the OFF TIMER.
4) To cancel the OFF TIMER setting, simply press "0" repeatedly, with the above display on the screen. The display will read: "OFF 0:00 LATER", to show the OFF TIMER is cancelled.

**Notes:**

- If an invalid time is selected (for example: "5:87"), it will be rejected and the OFF TIMER must be reset properly.
- While the OFF TIMER is activated, if the power is disconnected (such as in the case of power failure, etc.) and reapplied later, the OFF TIMER is automatically set between 2 and 3 hours.
- The OFF TIMER may turn the TV a little earlier than the preset time. (The accuracy of the OFF TIMER is ± 1 minute.)

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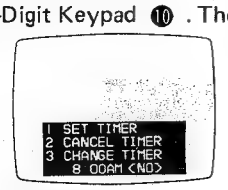
### 5. SET ON TIMER

The "ON TIMER" feature allows you to turn on your TV automatically at a preset time.

With "PAGE-2" (or "PAGE-1") MENU displayed on the screen, press "5" of 10-Digit Keypad ⓾. The display will show:




- The bottom line shows the preset time if already previously set.

**1) SET TIMER**

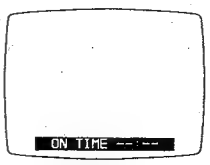
Press "1" to start the ON TIMER for turning the TV on automatically at the preset time shown. A "<YES>" appears to show that the ON TIMER has started.

**2) CANCEL TIMER**

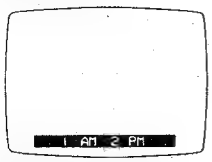
Press "2" to cancel the setting. A "<NO>" appears to show that the ON TIMER has been cancelled.

**3) CHANGE TIMER**

Press "3" to re-adjust the setting. Then, the following display appears.



Press the numbers on the Keypad to set the desired switch-on time. For example, if you want the TV to switch on automatically at 7:30 AM, press "0", "7", "3" and "0". The selected time of "7:30" appears and immediately the display changes to:




Then, press "1" to select the "AM" setting. (Press "2" to select the "PM" setting.) Now the following display appears on the screen to show the ON TIMER is set to "7:30 AM" with the <YES> indicating the ON TIMER has started. Finally, press POWER button ❶ to turn the power off. POWER/ON TIMER indicator ❷ remains lit to show that the ON TIMER is in operation.

**Notes:**

- If an invalid time is selected (for example: "17:70"), it will be rejected and the ON TIMER must be reset properly.
- After the ON TIMER has been properly set, it functions only once to turn on the TV's power. (It does not operate repeatedly every day at the same time as a serial timer.)
- Once the ON TIMER turns the TV on automatically, if the TV is not operated in any way, after 2 hours the TV will turn off automatically for safety. A single adjustment, even audio level adjustment or channel selection, will cancel this switch-off function.
- When the ON TIMER is set in combination with the OFF TIMER, program ON/OFF switching of up to 9 hours 59 minutes is possible. Set the OFF TIMER so that it will turn the power off after the ON TIMER turns the power on.

  **Example**

  Current time: 1:00 PM
  ON TIMER: Set to "6:00 PM"
  OFF TIMER: Set to "9:00 LATER"

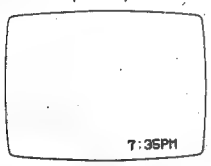
  - This setting allows automatic switch-on at 6:00 PM and then, turns power off at 10:00 PM.
    (If the TV is not operated in any way after automatic switch-on, the TV will turn off automatically at "8:00 PM".)
- The accuracy of the ON TIMER is ±1 minute.

## 6. SET CLOCK

Your TV has a built-in clock. Set the clock as follows.

1) With "PAGE-2" (or "PAGE-1") MENU displayed on the screen, press "6" of 10-Digit Keypad ❿ . The display will show:

2) Then, press the numbers (be sure to key in 4 digits) on the Keypad to set the current time. For example, if the present time is 7:35 PM, press "0", "7", "3" and "5". Then, the display changes to:




3) Press "2" to select the "PM" setting. (Press "1" to select the "AM" setting.) Then, the display changes to the following to show the current time is set and the clock starts operating.

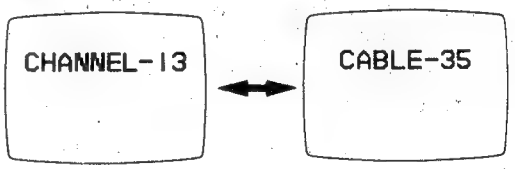
**Notes:**

- If an invalid time is selected (for example: "17:70"), it will be rejected and the built-in clock must be reset properly.
- If you wish to set the clock precisely in step 3) above, press "2" (or "1") at the same instant of a time signal.
- The built-in clock may loose time depending on the manner in which the TV is used or the frequency of the power source. If the time difference becomes great, re-adjust the clock.
- If power is disconnected (such as in the case of a power outage, or the like) and reapplied later, the clock will be automatically set at "1:00 AM".

# MORE USEFUL FUNCTIONS

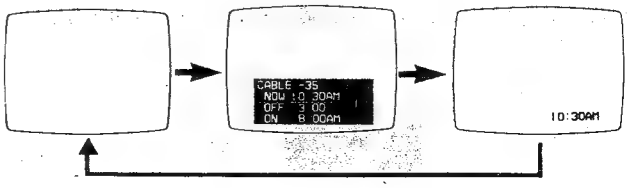
### RETURN Button

Press RETURN button ⓭ on the Remote Control.
The previously viewed channel will appear on the screen.
Press RETURN again to switch back to the original channel.
Repeatedly pressing RETURN switches between these two channels.




### DISPLAY Button

Press DISPLAY button ❽ on the Remote Control. The channel number of the program you are now viewing, the ON/OFF TIMER settings, and the current time are displayed in the following order by each pressing of the DISPLAY button. The current time remains displayed on the screen until the DISPLAY button is pressed again.




### MUTE Button

Press MUTE button ⓯ on the Remote Control.
The sound of the TV program being viewed will be decreased to minimum and "VOLUME 00" will appear on the screen. Press MUTE again (or VOLUME or CHANNEL buttons) to restore the sound.

# V. HOW TO REMOVE FOR SERVICE

## ■ REMOVING REAR COVER

1. Unplug the power supply cord and remove the seven screws (A) shown in Fig. 1.
   * When reinstalling the rear cover, carefully push it inward after inserting the main PC board into the rear cover groove.

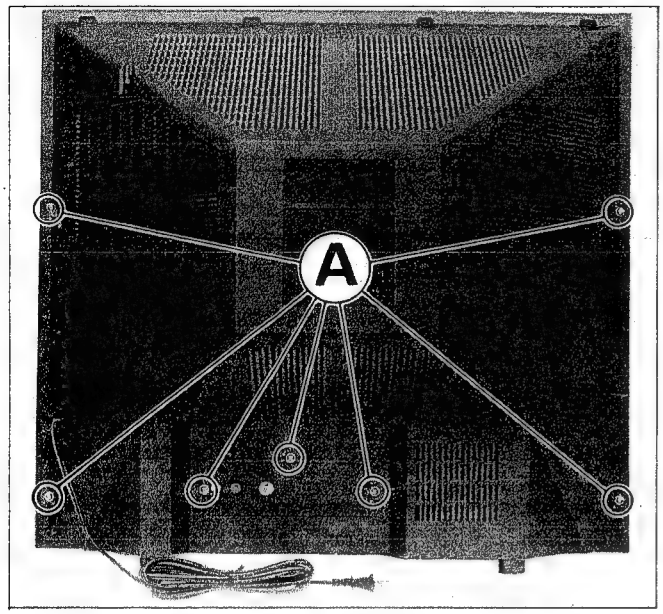



Fig. 1

## ■ REMOVING MAIN PC BOARD

1. Remove the two screws (B) shown in Fig. 2.
2. Pushing up the two nails (C) shown in Fig. 3.
3. Withdraw the PC Board backward along the arrow. (Fig. 3)
   * When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT socket board and the chassis.

## ■ WIRE CLAMPING AND TYING BAND

1. Be sure to clamp the wire.
2. Never remove the tying band used for wire clamping. Should it be inadvertently removed, be sure to clamp the wire again, using insulating material.

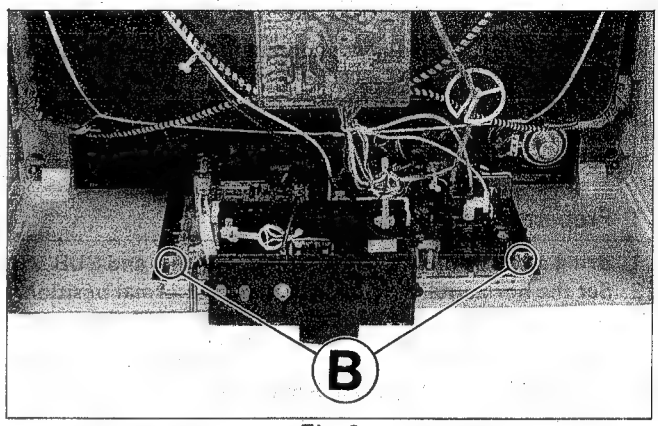



Fig. 2

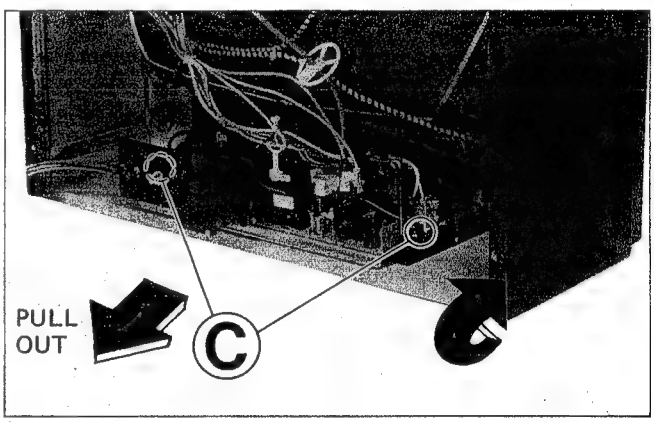



Fig. 3

# VI. SERVICE ADJUSTMENT

## ■ HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT

1. High voltage hold down circuit.
   After repair of the high voltage hold down circuit shown in Fig. 1, this circuit shall be checked to operate correctly.
2. Checking method of the high voltage hold down circuit.
   (1) Make the short circuit across R906, 330 Ω 15 W UNF R (shown in Fig. 2, [ ]) under normal operating condition.
   (2) Confirm the picture goes out.

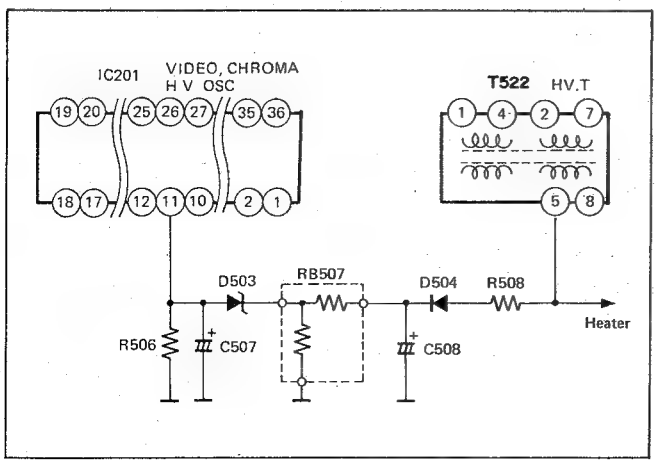



Fig. 1

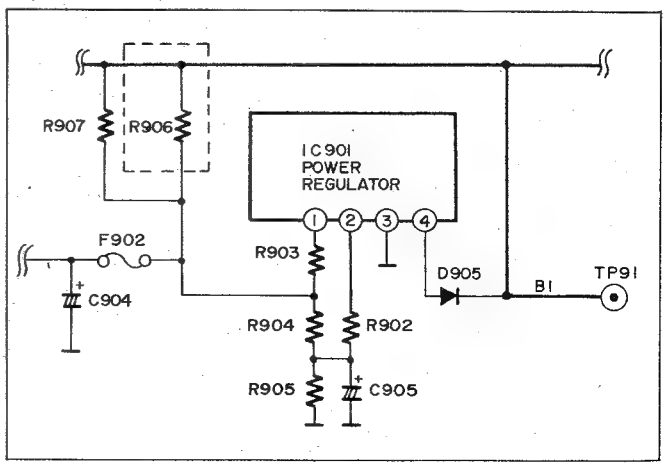



Fig. 2

## ■ SERVICE ADJUSTMENTS

* **Use isolation transformer when repairing (See: Safety Precaution)**

**REGARDING CHROMA ADJUSTMENTS, REFER TO THE APPENDED NTSC.**
**AS TO THE FOLLOWING ITEMS, OBSERVE THE RESPECTIVE INSTRUCTIONS GIVEN HEREIN.**

As for the test points and respective volume adjusting positions, refer to the schematic diagram and the section on "alignment locations" appearing in the same diagram.

## ■ NOTICE FOR APPENDED "NTSC" ADJUSTMENT

**As to the following adjustment, adjust by referring to appended NTSC adjustment.**
- **SAFETY PRECAUTION**
- **PURITY, CONVERGENCE AND WHITE BALANCE**

### * Preparations before Adjustment

1. **Bring all positions of VR (Noise V. Height) and SUB VR (Bright, Picture) near to the center.**
2. **Set the horizontal service switch at the normal position.**
3. **Bring all positions of user VR (Bright, Picture, Color, Tint, Detail) to the center. (Function — Reset position)**

## ■ GENERAL ADJUSTMENT

| Item | Location | Procedure | Remarks |
|---|---|---|---|
| $B_1$ voltage | ——— | Connect a tester to TP-91 and TP-E to check that voltage is as specified in the circuit diagram. | * The tester must have an internal resistance of 20 kΩ/V or above. |
| SUB BRIGHT | Sub Bright VR (R246) | Obtain optimum pictures by adjusting Sub Bright VR. | * Avoid excessive brightness. |
| SUB PICTURE | Sub Picture VR (R249) | Adjust Sub Picture VR to obtain optimum pictures. | |
| NOISE (RF. AGC) | Noise VR (R112) | 1. Turn the Noise VR fully counter-clockwise (or clockwise) so that noise is synchronized with the pictures.<br>2. Then slowly turn the Noise VR clockwise (or counterclockwise) and stop it when noise disappears.<br>3. Change the channel, and check that no trouble is encountered. | * This adjustment should be made when noise is annoying, when such symptoms are detected as stripe-pattern interference in weak field areas, inter modulation noise in strong field areas, and horizontal stretching of pictures. |
| Vertical height | Vertical height VR (R428) | 1. Receive a picture that enables vertical symmetry to be checked.<br>2. Using the vertical height VR, reduce the picture vertically.<br>3. Upon adjusting with the vertical height VR, return the picture to normal vertically. | * Pictures that enable vertical symmetry to be checked should be circles and crosshatches. |
| Focus | Focus VR | 1. Adjust the focus VR to obtain clear pictures.<br>2. Check that pictures have been adjusted to optimum appearance in both central and peripheral areas of the screen. | |

## ■ ADJUSTMENTS OF SIMPLIFIED P. IF/RF, AFC/S. IF

| Item | Location | Procedure | Remarks |
|---|---|---|---|
| P. IF | CW Transformer (T104) | 1. Receive the color bars.<br>2. Connect the tester to the RF. AGC terminal of the tuner.<br>3. Reduce the field strength so that RF. AGC voltage becomes 4 ~ 6 V.<br>4. Adjust the CW transformer so that RF. AGC voltage becomes minimized. | |
| RF. AFC | AFC Transformer (T103) | 1. Receive the color bars.<br>2. Adjust the AFC transformer to obtain optimal pictures. | * Do not touch this transformer unless it develops trouble. |
| S. IF | 1. S-take off transformer (T601)<br>2. Detector transformer (T602) | 1. Receive a telecast.<br>2. By adjusting the detector and S-take off transformers, maximize the volume while minimizing the bass to obtain optimal sound without distortion. | |

# Ⅶ. REPLACEMENT PARTS LIST

## ■ MAIN REPLACEMENT PARTS LIST

＊ : Country of Origin

| SYMBOL NO. | ⚠ | PART NO. | PART NAME | REMARKS | ＊ |
|---|---|---|---|---|---|
| CRT & TUNER | | | | | |
| | | CE41095-00A | WEDGE ASSY | (×4) | |
| | | A75034-B | P&C MAGNET | | |
| DY01 | ⚠ | CE20106-B0AKJ1 | DEF YOKE | | |
| L01 | ⚠ | CE41329-00AJ1 | DEG COIL | | |
| TU1701 | ⚠ | AN7042EP-A04# | TUNER | | |
| V01 | ⚠ | MVA66AAM03X | PICTURE TUBE | | ＊ |
| VARIABLE RESISTOR | | | | | |
| R1112 | | QVPE805-202J1 | V R (NOISE) | 2kΩ B | |
| R1246 | | QVPA801-202 | TRIM R (SUB BRIGHT) | 2kΩ B | |
| R1249 | | QVPA801-103 | TRIM R (SUB PICTURE) | 10kΩ B | |
| R1428 | | QVPA801-102 | TRIM R (V. HEIGHT) | 1kΩ B | |
| R3104 | | QVPE805-502J1 | V R (B CUT OFF) | 5kΩ B | |
| R3105 | | QVPE805-502J1 | V R (G CUT OFF) | 5kΩ B | |
| R3106 | | QVPE805-502J1 | V R (R CUT OFF) | 5kΩ B | |
| R3111 | | QVPE805-201J1 | V R (G DRIVE) | 200 Ω B | |
| R3112 | | QVPE805-201J1 | V R (R DRIVE) | 200 Ω B | |
| TRANSFORMER | | | | | |
| T1521 | ⚠ | A46022-BM | HOR DRIVE TRANSF | | |
| T1522 | ⚠ | CE41234-00C-KD | HV TRANSF | | |
| DIODE | | | | | |
| D1102 | | RD8. 2ES (B1) -Y# | ZENER DIODE | | |
| D1201 | | RD7. 5E (B3) # | ZENER DIODE | | |
| D1203 | | MA4150 (L) -Y# | ZENER DIODE | | |
| D1422 | | 05AZ75# | ZENER DIODE | | |
| D1501 | | MA4068 (L) -Y# | ZENER DIODE | | |
| D1502 | | MA4091 (M) -Y# | ZENER DIODE | | |
| D1503 | ⚠ | MA4068 (N) V1-Y | ZENER DIODE | | |
| D1532 | ⚠ | RGP10J# | SI DIODE | | |
| D1533 | ⚠ | RGP10J# | SI DIODE | | |
| D1534 | ⚠ | RGP10J# | SI DIODE | | |
| D1536 | ⚠ | RH1S-LFA1# | SI DIODE | | |
| D1714 | | GL-5HD23 | L E D | Power | |
| D1794 | | MA4062 (M) -Y# | ZENER DIODE | | |
| D1803 | | MA4051 (L) -Y# | ZENER DIODE | | |
| D1832 | | MA4082 (M) -Y# | ZENER DIODE | | |
| D1833 | | MA4082 (M) -Y# | ZENER DIODE | | |
| D1841 | | PD49PI | PHOTO DIODE | | |
| D1901 | ⚠ | 1S1887ALC-7# | SI DIODE | | |
| D1902 | ⚠ | 1S1887ALC-7# | SI DIODE | | |
| D1903 | ⚠ | 1S1887ALC-7# | SI DIODE | | |
| D1904 | ⚠ | 1S1887ALC-7# | SI DIODE | | |
| TRANSISTOR | | | | | |
| Q1522 | ⚠ | 2SD1455-07 | SI TRANSISTOR | H. OUT | |
| Q3101 | ⚠ | 2SC3271 (N, P) # | SI. TRANSISTOR | B. OUT | |
| Q3102 | ⚠ | 2SC3271 (N, P) # | SI. TRANSISTOR | G. OUT | |
| Q3103 | ⚠ | 2SC3271 (N, P) # | SI. TRANSISTOR | R. OUT | |
| IC | | | | | |
| IC1101 | | M51346AP# | I. C. (M) | | |
| IC1201 | | TA8601AN | I. C. | | |
| IC1321 | | AN5862K# | I. C. | | |
| IC1421 | ⚠ | AN5521# | I C | | |
| IC1621 | ⚠ | AN5265# | I. C. | | |
| IC1701 | | MN15266JMC-1 | I C | | |
| IC1702 | | MN1280-K | I. C. (M) | | |
| IC1801 | | UPC1486C# | I. C. | | |
| IC1831 | | MN12C25 | I. C. (M) | | |
| IC1841 | | UPC1490HA# | I. C. | | |

＊: Country of Origin

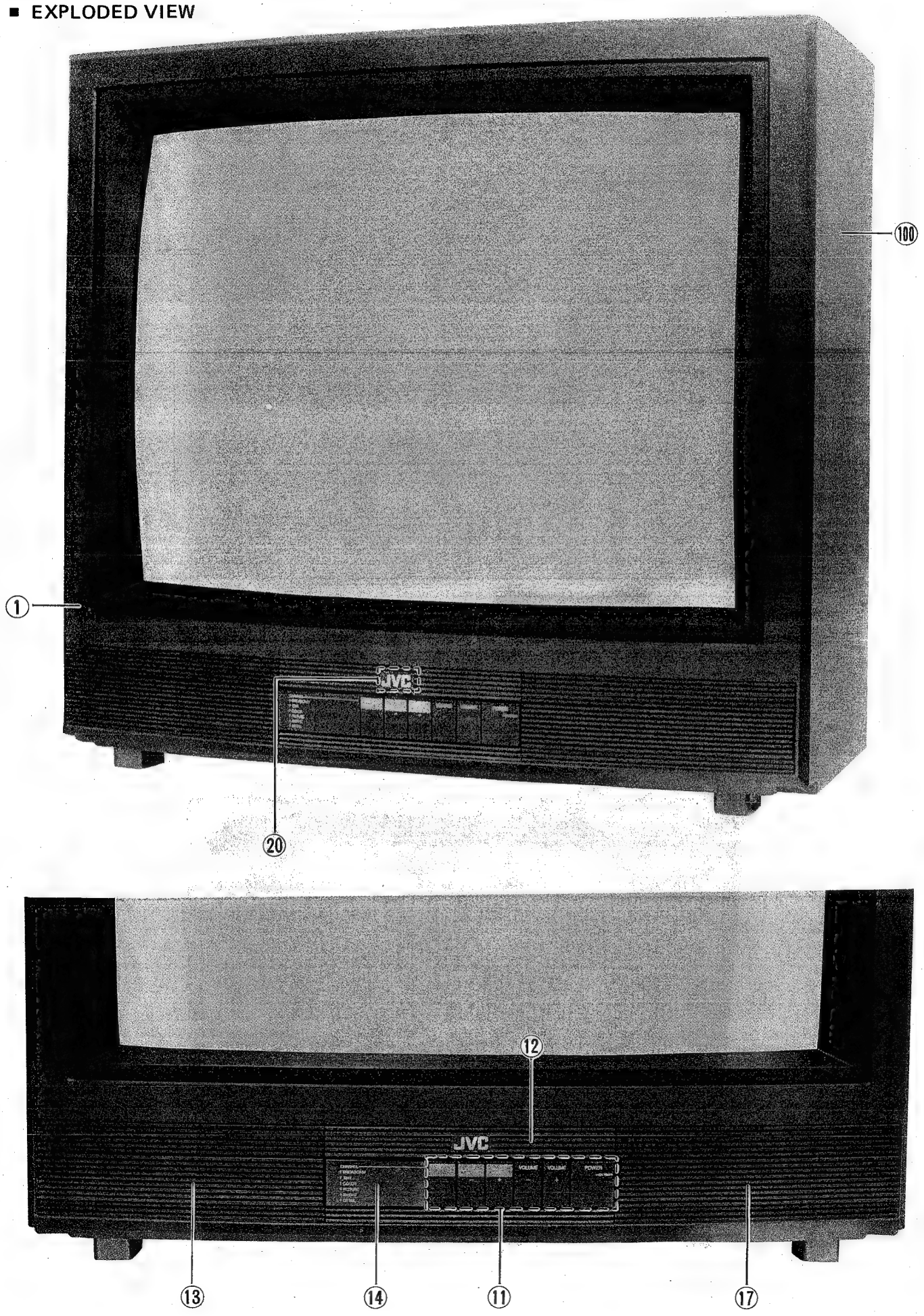
| SYMBOL NO. | ⚠ | PART NO. | PART NAME | REMARKS | ＊ |
|---|---|---|---|---|---|
| IC | | | | | |
| IC1901 | ⚠ | STR3130# | I. C. | | |
| OTHERS | | | | | |
| | ⚠ | QMP1660-220J1 | POWER CORD | | |
| | ⚠ | CM31849-00P-KD | ANT. TERMINAL | | |
| | | CM00026-002-M0 | REAR COVER | | ＊ |
| | | CM32396-B0B-KD | KNOB ASSY | | |
| | | CM20925-010 | RATING LABEL | | ＊ |
| DL1201 | | CE41108-001 | DELAY LINE | | |
| F1901 | ⚠ | QMF66U1-5R0S | FUSE | 5. 0A | |
| F1902 | ⚠ | QMF53U1-1R25S | FUSE | 1. 25A | |
| LF1901 | ⚠ | CE40247-00BJ1 | LINE FILTER | | |
| RY1901 | ⚠ | CESK006-003 | RELAY | | |
| SP01 | | CEBSF12D-01KJ1 | CONE SPEAKER | | |
| S1201 | | QSL4A13-C02 | LEVER SWITCH | Service | |
| S1401 | | QSL4A13-C02 | LEVER SWITCH | V. Center | |
| S1701 | | QSP1A11-C09J1 | PUSH SWITCH | Function | |
| S1702 | | QSP1A11-C09J1 | PUSH SWITCH | UP | |
| S1703 | | QSP1A11-C09J1 | PUSH SWITCH | Down | |
| S1704 | | QSP1A11-C09J1 | PUSH SWITCH | Power | |
| S1705 | | QSP1A11-C09J1 | PUSH SWITCH | VOL△ | |
| S1706 | | QSP1A11-C09J1 | PUSH SWITCH | VOL▽ | |
| TH1901 | ⚠ | CE40595-001 | TH POSISTOR | | |
| X1301 | | A76351-D-T | X-TAL | | |
| X1701 | | CE41216-001 | X TAL | | |

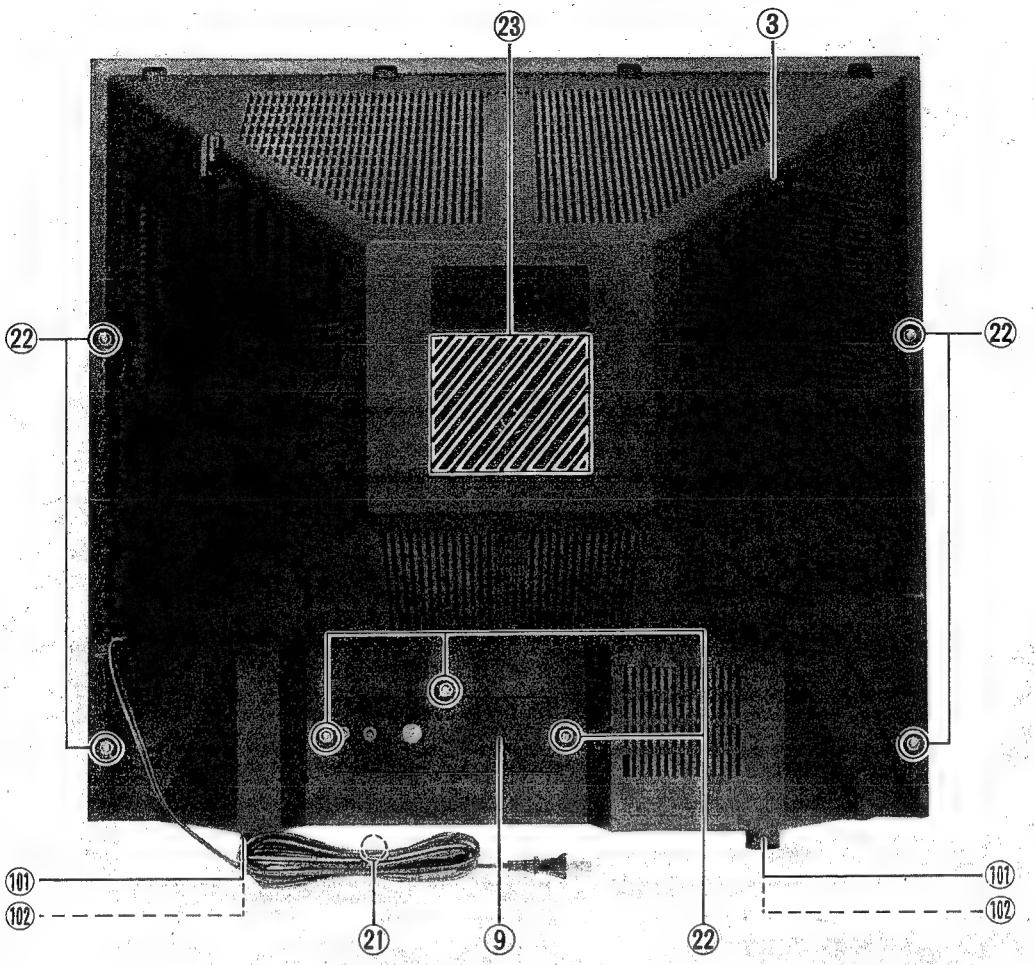
## ■ CHASSIS & CABINET PARTS LIST

* :Country of Origin

| | VIEW NO. | SYMBOL NO. | PART NO. | PART NAME | REMARKS | * |
|---|---|---|---|---|---|---|
| | 1 | | CM00025-002-M0 | FRONT PANEL | | * |
| ⚠ | 2 | V01 | MVA66AAM03X | PICTURE TUBE | | * |
| | 3 | | CM00026-002-M0 | REAR COVER | | * |
| ⚠ | 4 | T1522 | CE41234-00C-KD | HV TRANSF | | |
| ⚠ | 5 | DY01 | CE20106-B0AKJ1 | DEF YOKE | | |
| ⚠ | 6 | L01 | CE41329-00AJ1 | DEG COIL | | |
| | 7 | SP01 | CEBSF12D-01KJ1 | CONE SPEAKER | | |
| | 8 | | CE41095-00A | WEDGE ASSY | (×4) | |
| ⚠ | 9 | | CM31849-00P-KD | ANT. TERMINAL | | |
| | 10 | | A75034-B | P&C MAGNET | | |
| | 11 | S1401 | QSL4A13-C02 | LEVER SWITCH | V. Center | |
| | 12 | | CM21185-B01-KD | FRONT GRILLE | | |
| | 13 | | CM21206-001-KT | SP GRILLE (L) | | |
| | 14 | | CM32363-002 | REMOCON WINDOW | | |
| ⚠ | 15 | | QMP1660-220J1 | POWER CORD | | |
| | 16 | | CM30861-053-T | SPRING | | |
| | 17 | | CM21206-002-KT | SP GRILLE (R) | | |
| | 18 | | CH30080-00H | BRAIDED ASSY | | |
| | 19 | | CM42729-001 | SPRING | (×2) | |
| | 20 | | CM43094-004-T | JVC MARK | | |
| | 21 | | CM40732-001-T | CORD CLAMP | | |
| | 22 | | GBSA4016N-T | W TAP SCREW | (×7) Rear Cover | |
| | 23 | | CM20925-010 | RATING LABEL | | * |
| ⚠ | 24 | Q1522 | 2SD1455-07 | SI. TRANSISTOR | H. OUT | |
| ⚠ | 25 | TU1701 | AN7042EP-A04# | TUNER | | |
| ⚠ | 26 | F1901 | QMF66U1-5R0S | FUSE | 5.0A | |
| ⚠ | 27 | F1902 | QMF53U1-1R25S | FUSE | 1.25A | |
| | 28 | S1201 | QSL4A13-C02 | LEVER SWITCH | Service | |
| | 29 | S1701 | QSP1A11-C09J1 | PUSH SWITCH | Function | |
| | 30 | S1702 | QSP1A11-C09J1 | PUSH SWITCH | UP | |
| | 31 | S1703 | QSP1A11-C09J1 | PUSH SWITCH | Down | |
| | 32 | S1704 | QSP1A11-C09J1 | PUSH SWITCH | Power | |
| | 33 | S1705 | QSP1A11-C09J1 | PUSH SWITCH | Vol△ | |
| | 34 | S1706 | QSP1A11-C09J1 | PUSH SWITCH | Vol▽ | |
| | 35 | D1714 | GL-5HD23 | LED | Power | |
| | 100 | | CN10275-00A | CABINET ASSY | Include No. 101-102 | * |
| | 101 | | N48003-D | TRANN LEG | (×2) | * |
| | 102 | | SDSA4015Z | BIND HEAD SCREW | (×2) | * |
| | 200 | | CM32396-B0B-KD | KNOB ASSY | Include No. 201 | |
| | 201 | | CM44268-001 | LED INDICATER | | |

## ■ EXPLODED VIEW

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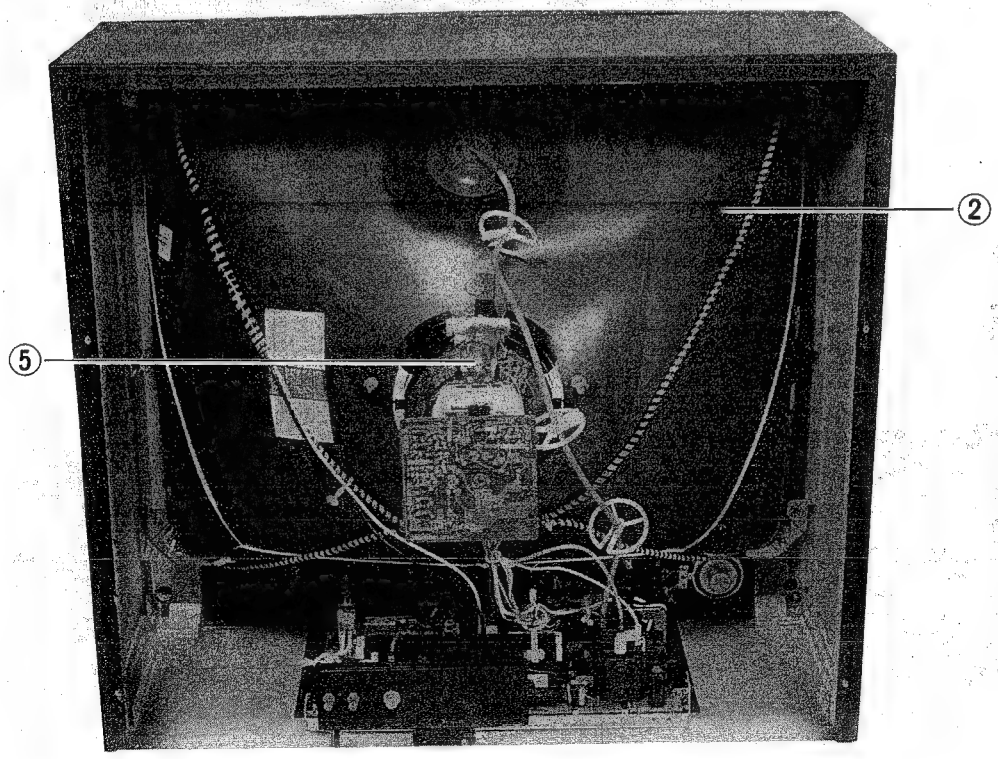
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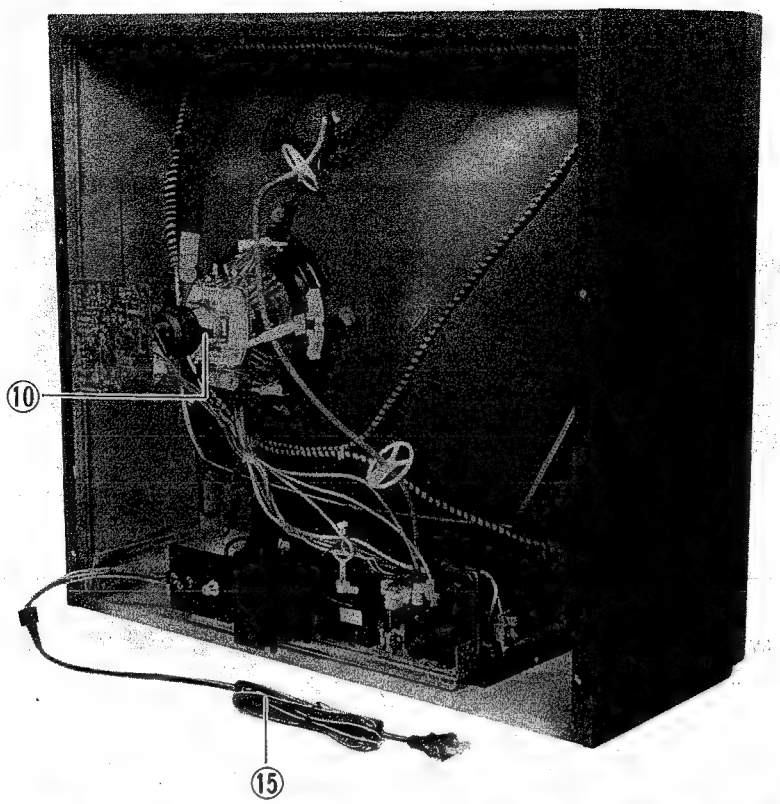
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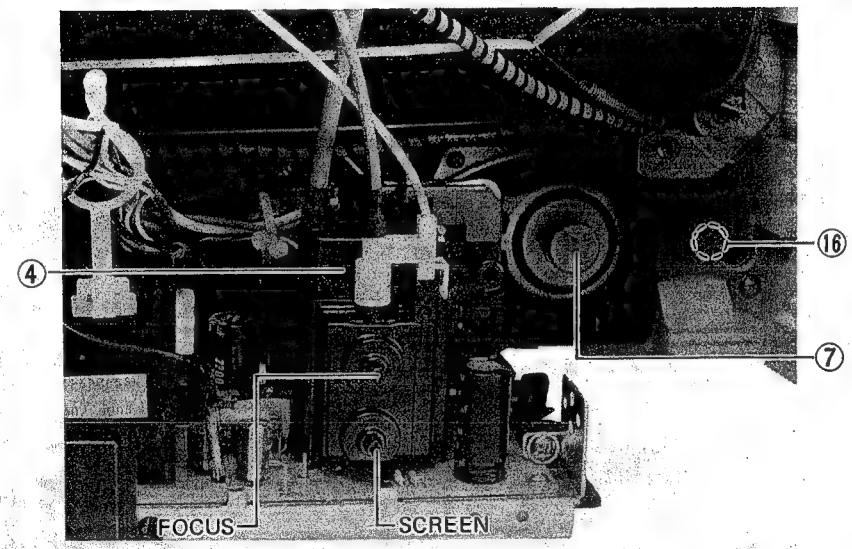
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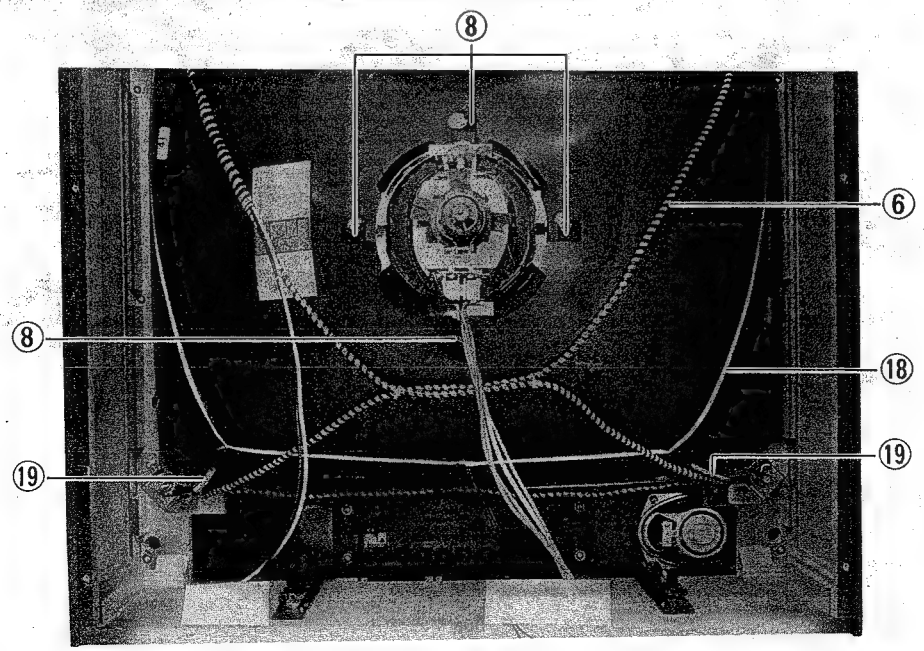
FOCUS
SCREEN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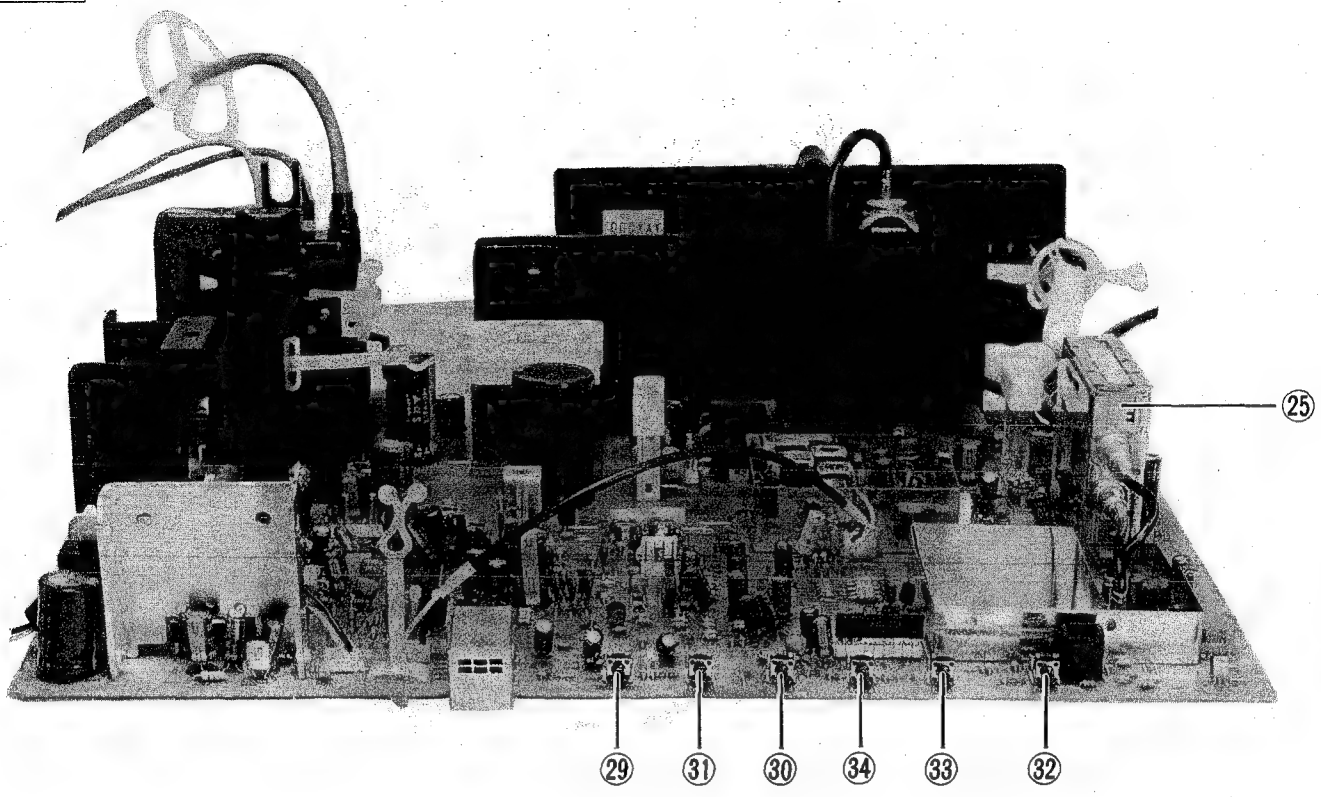
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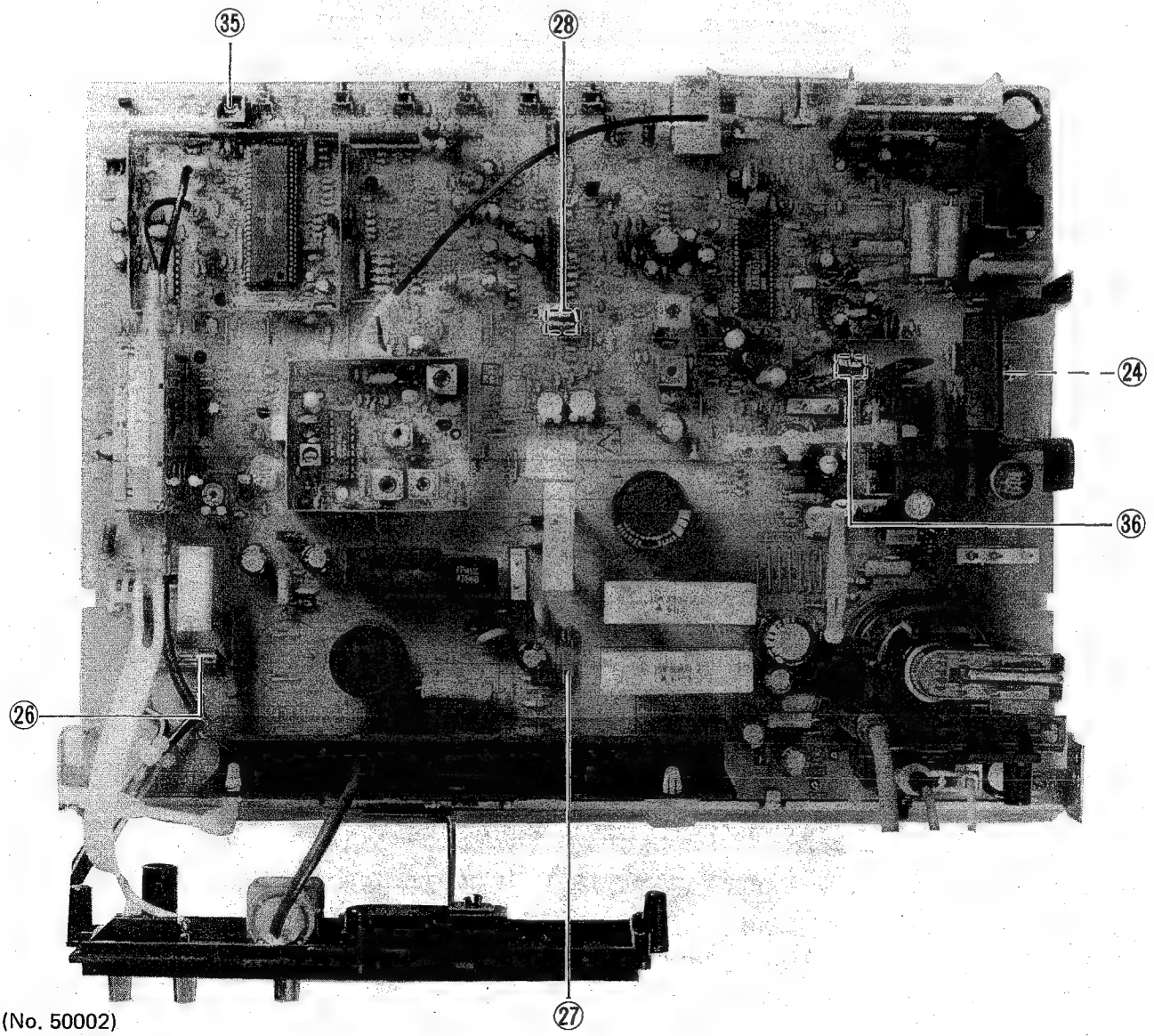
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## ■ PC BOARD PARTS LIST
## SX-1172A(T2) (MAIN PCB ASS'Y)

| | SYMBOL NO. | PART NO. | PART NAME | REMARKS | | |
|---|---|---|---|---|---|---|
| | VARIABLE RESISTOR | | | | | |
| | R1112 | QVPE805-202J1 | V R (NOISE) | 2kΩ | B | |
| | R1246 | QVPA801-202 | TRIM R (SUB BRIGHT) | 2kΩ | B | |
| | R1249 | QVPA801-103 | TRIM R (SUB PICTURE) | 10kΩ | B | |
| | R1428 | QVPA801-102 | TRIM R (V. HEIGHT) | 1kΩ | B | |
| | RESISTOR | | | | | |
| ⚠ | RB1507 | CJ39520-00U | R BLOCK | | | |
| ⚠ | R1107 | QRD161J-5R6YJ1 | C R | | | |
| ⚠ | R1108 | QRZ0075-560YJ1 | C R | 56 Ω | 1/2W | J |
| ⚠ | R1201 | QRZ0075-330YJ1 | C R | 33 Ω | 1/2W | J |
| | R1217 | QRZ0075-391YJ1 | C R | 390 Ω | 1/2W | J |
| | R1218 | QRZ0075-472YJ1 | C R | 4.7kΩ | 1/2W | J |
| ⚠ | R1321 | QRD161J-100YJ1 | C R | 10 Ω | 1/6W | J |
| ⚠ | R1402 | QRD161J-154YJ1 | C R | 150kΩ | 1/6W | J |
| ⚠ | R1422 | QRZ0075-561YJ1 | C R | 560 Ω | 1/2W | J |
| ⚠ | R1423 | QRZ0075-152YJ1 | C R | 1.5kΩ | 1/2W | J |
| ⚠ | R1426 | QRX019J-1R8SJ1 | MF R | 1.8 Ω | 1W | J |
| ⚠ | R1432 | QRZ0075-151YJ1 | C R | 150 Ω | 1/2W | J |
| ⚠ | R1508 | QRZ0075-100YJ1 | C R | 10 Ω | 1/2W | J |
| ⚠ | R1521 | QRG029J-273AJ1 | OM R | 27kΩ | 2W | J |
| | R1523 | QRZ0075-220YJ1 | C R | 22 Ω | 1/2W | J |
| ⚠ | R1524 | QRZ0075-562YJ1 | C R | 5.6kΩ | 1/2W | J |
| ⚠ | R1525 | QRZ0082-103 | OM R | 10kΩ | 3W | J |
| ⚠ | R1526 | QRZ0081-153 | OM R | 15kΩ | 2W | J |
| ⚠ | R1527 | QRZ0081-153 | OM R | 15kΩ | 2W | J |
| ⚠ | R1528 | QRG029J-391AJ1 | OM R | 390 Ω | 2W | J |
| ⚠ | R1529 | QRZ0082-682 | OM R | 6.8kΩ | 3W | J |
| ⚠ | R1532 | QRD129J-1R8S | C R | 1.8 Ω | 1/2W | J |
| ⚠ | R1533 | QRX039J-3R3AJ1 | MF R | 3.3 Ω | 3W | J |
| ⚠ | R1534 | QRX039J-3R9AJ1 | MF R | 3.9 Ω | 3W | J |
| ⚠ | R1536 | QRD149J-1R0S | C R | 1.0 Ω | 1/4W | J |
| ⚠ | R1537 | QRZ0075-121YJ1 | C R | 120 Ω | 1/2W | J |
| ⚠ | R1541 | QRZ0075-274YJ1 | C R | 270kΩ | 1/2W | J |
| ⚠ | R1542 | QRZ0075-224YJ1 | C R | 220kΩ | 1/2W | J |
| ⚠ | R1621 | QRD161J-680YJ1 | C R | 68 Ω | 1/6W | J |
| ⚠ | R1628 | QRZ0075-4R7YJ1 | C R | 4.7 Ω | 1/2W | J |
| ⚠ | R1630 | QRX019J-1R0SJ1 | MF R | 1 Ω | 1W | J |
| ⚠ | R1791 | QRZ0075-182YJ1 | C R | 1.8kΩ | 1/2W | J |
| ⚠ | R1792 | QRG019J-183SJ1 | OM R | 18kΩ | 1W | J |
| ⚠ | R1793 | QRZ0080-152 | UNF R | 1.5kΩ | 5W | J |
| ⚠ | R1794 | QRG029J-182AJ1 | OM R | 1.8kΩ | 2W | J |
| ⚠ | R1795 | QRG029J-562AJ1 | OM R | 5.6kΩ | 2W | J |
| ⚠ | R1796 | QRZ0075-474YJ1 | C R | 470kΩ | 1/2W | J |
| ⚠ | R1797 | QRZ0075-333YJ1 | C R | 33kΩ | 1/2W | J |
| | R1820 | QRG019J-121SJ1 | OM R | 120 Ω | 1W | J |
| ⚠ | R1821 | QRD161J-5R6YJ1 | C R | | | |
| ⚠ | R1824 | QRG039J-103AJ1 | OM R | 10kΩ | 3W | J |
| ⚠ | R1901 | QRF074K-1R8J1 | UNF R | 1.8 Ω | 7W | K |
| ⚠ | R1902 | QRZ0075-221YJ1 | C R | 220 Ω | 1/2W | J |
| ⚠ | R1903 | QRX039J-2R7 | MF R | 2.7 Ω | 3W | J |
| ⚠ | R1904 | QRZ0075-103YJ1 | C R | 10kΩ | 1/2W | J |
| ⚠ | R1905 | QRD161J-224YJ1 | C R | 220kΩ | 1/6W | J |
| ⚠ | R1906 | QRF154J-331J1 | UNF R | 330 Ω | 15W | J |
| ⚠ | R1907 | QRF154J-331J1 | UNF R | 330 Ω | 15W | J |
| | CAPACITOR | | | | | |
| | C1104 | QETC1CM-336ZJ1 | E CAP. | 33μF | 16V | M |
| | C1108 | QEC91HM-224M | E CAP. | 0.22μF | 50V | M |
| | C1109 | QFN31HJ-473ZJ1 | M CAP. | 0.047μF | 50V | J |
| | C1110 | QCT25CH-121ZJ1 | C CAP. | 120pF | 50V | J |

| | SYMBOL NO. | PART NO. | PART NAME | REMARKS | | |
|---|---|---|---|---|---|---|
| | CAPACITOR | | | | | |
| | C1111 | QCT25CH-330ZJ1 | C CAP. | 33pF | 50V | J |
| | C1113 | QETC1CM-476ZJ1 | E CAP. | 47μF | 16V | M |
| | C1202 | QETC1HM-105ZJ1 | E CAP. | 1μF | 50V | M |
| | C1203 | QETC1HM-474ZJ1 | E CAP. | 0.47μF | 50V | M |
| | C1204 | QETC1HM-474ZJ1 | E CAP. | 0.47μF | 50V | M |
| | C1205 | QEM51EK-335M | E CAP. | 3.3μF | 25V | K |
| | C1206 | QETC1CM-106ZJ1 | E CAP. | 10μF | 16V | M |
| | C1207 | QFN31HJ-103ZJ1 | M CAP. | 0.01μF | 50V | J |
| | C1211 | QETC1EM-475ZJ1 | E CAP. | 4.7μF | 25V | M |
| | C1214 | QFN31HJ-683ZJ1 | M CAP. | 0.068μF | 50V | J |
| | C1215 | QETC1CM-476ZJ1 | E CAP. | 47μF | 16V | M |
| | C1219 | QETC1CM-106ZJ1 | E CAP. | 10μF | 16V | M |
| | C1221 | QETB1CM-108J1 | E CAP. | 1000μF | 16V | M |
| | C1303 | QEN61HM-225ZJ1 | BP E CAP. | 2.2μF | 50V | M |
| | C1304 | QFN31HJ-103ZJ1 | M CAP. | 0.01μF | 50V | J |
| | C1306 | QFN31HJ-103ZJ1 | M CAP. | 0.01μF | 50V | J |
| | C1307 | QFN31HJ-563ZJ1 | M CAP. | 0.056μF | 50V | J |
| | C1308 | QFN31HJ-103ZJ1 | M CAP. | 0.01μF | 50V | J |
| | C1311 | QETC1HM-474ZJ1 | E CAP. | 0.47μF | 50V | M |
| | C1313 | QFN31HJ-473ZJ1 | M CAP. | 0.047μF | 50V | J |
| | C1321 | QETC1CM-476ZJ1 | E CAP. | 47μF | 16V | M |
| | C1322 | QETC1CM-106ZJ1 | E CAP. | 10μF | 16V | M |
| | C1323 | QETC1CM-106ZJ1 | E CAP. | 10μF | 16V | M |
| | C1324 | QETC1CM-106ZJ1 | E CAP. | 10μF | 16V | M |
| | C1401 | QEM51HK-225M | E CAP. | 2.2μF | 50V | K |
| | C1421 | QFN31HJ-273ZJ1 | M CAP. | 0.027μF | 50V | J |
| | C1422 | QCY32HK-271ZJ1 | C CAP. | 270pF | 500V | K |
| ⚠ | C1423 | QETB1VM-227J1 | E CAP. | 220μF | 35V | M |
| | C1424 | QETB1EM-228J1 | E CAP. | 2200μF | 25V | M |
| | C1426 | QFV81HJ-334M | TF CAP. | 0.33μF | 50V | J |
| | C1427 | QFN31HJ-273ZJ1 | M CAP. | 0.027μF | 50V | J |
| | C1428 | QFV71HJ-104MZ | TF CAP. | 0.1μF | 50V | J |
| | C1429 | QFN31HJ-563ZJ1 | M CAP. | 0.056μF | 50V | J |
| | C1501 | QFN31HJ-223J1 | M CAP. | 0.022μF | 50V | J |
| | C1502 | QETC1HM-225ZJ1 | E CAP. | 2.2μF | 50V | M |
| | C1503 | QFN31HJ-392ZJ1 | M CAP. | 3900pF | 50V | J |
| | C1504 | QFN31HJ-103ZJ1 | M CAP. | 0.01μF | 50V | J |
| | C1505 | QETC1AM-227ZJ1 | E CAP. | 220μF | 10V | M |
| | C1507 | QETC1CM-106ZJ1 | E CAP. | 10μF | 16V | M |
| ⚠ | C1508 | QETB1VM-107J1 | E CAP. | 100μF | 35V | M |
| ⚠ | C1510 | QFK52AK-224M | MM CAP. | 0.22μF | 100V | K |
| ⚠ | C1522 | QCS32HJ-181J1 | C CAP. | 180pF | 500V | J |
| ⚠ | C1523 | QFN32DK-103J1 | M CAP. | 0.01μF | 200V | K |
| ⚠ | C1524 | QFZ0081-1262S | MPP CAP. | 12600pF | 1600V | ±3% |
| ⚠ | C1526 | QFZ0089-564S | MPP CAP. | 0.56μF | 200V | J |
| ⚠ | C1527 | QCZ0115-331A | C. CAP. | 330pF | 2000V | K |
| ⚠ | C1528 | QCY32HK-561ZJ1 | C CAP. | 560pF | 500V | K |
| ⚠ | C1529 | QCY32HK-102ZJ1 | C CAP. | 1000pF | 500V | K |
| ⚠ | C1530 | QCY32HK-102J1 | C CAP. | 1000pF | 500V | K |
| ⚠ | C1532 | QETB1EM-477J1 | E CAP. | 470μF | 25V | M |
| ⚠ | C1533 | QETA1VM-228J1 | E CAP. | 2200μF | 35V | M |
| ⚠ | C1534 | QETB1EM-477J1 | E CAP. | 470μF | 25V | M |
| ⚠ | C1535 | QETB1CM-477J1 | E CAP. | 470μF | 16V | M |
| ⚠ | C1536 | QET52ER-106J1 | E CAP. | 10μF | 250V | R |
| | C1542 | QFN32DK-473J1 | M CAP. | 0.047μF | 200V | K |
| ⚠ | C1546 | QCS32HJ-151J1 | C CAP. | 150pF | 500V | J |
| | C1603 | QFN31HJ-473ZJ1 | M CAP. | 0.047μF | 50V | J |
| | C1605 | QFN31HJ-103ZJ1 | M CAP. | 0.01μF | 50V | J |

| SYMBOL NO. | PART NO. | PART NAME | REMARKS |
|---|---|---|---|
| CAPACITOR | | | |
| C1606 | QFN31HJ-392ZJ1 | M CAP. | 3900pF 50V J |
| C1621 | QETC1CM-476ZJ1 | E CAP. | 47μF 16V M |
| C1622 | QEN61HM-105ZJ1 | BP E CAP. | 1μF 50V M |
| C1623 | QFN31HJ-682ZJ1 | M CAP. | 6800pF 50V J |
| C1624 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1625 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1626 | QETC1CM-106ZJ1 | E CAP. | 10μF 16V M |
| C1628 | QFN31HJ-473ZJ1 | M CAP. | 0.047μF 50V J |
| C1629 | QETC1CM-227ZJ1 | E CAP. | 220μF 16V M |
| ⚠ C1631 | QETB1EM-228J1 | E CAP. | 2200μF 25V M |
| C1700 | QEB51HM-104M | E CAP. | 0.1μF 50V M |
| C1707 | QFN31HJ-222ZJ1 | M CAP. | 2200pF 50V J |
| C1708 | QFN31HJ-333ZJ1 | M CAP. | 0.033μF 50V J |
| C1710 | QETC0JM-107ZJ1 | E CAP. | 100μF 6.3V M |
| C1712 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1713 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1714 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1715 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1716 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1717 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1718 | QCNB42M-101M | CAP. BLOCK | |
| C1719 | QCNF42Z-102M | CAP. BLOCK | |
| C1721 | CECN001-102 | CAP. BLOCK | |
| C1723 | CECN001-102 | CAP. BLOCK | |
| ⚠ C1791 | QET52ER-475J1 | E CAP. | 4.7μF 250V R |
| ⚠ C1792 | QETB2CM-106 | E CAP. | 10μF 160V M |
| C1804 | QFV71HJ-474MZ | TF CAP. | 0.47μF 50V J |
| C1805 | QFN31HJ-683ZJ1 | M CAP. | 0.068μF 50V J |
| C1806 | QETB1CM-108J1 | E CAP. | 1000μF 16V M |
| C1807 | QETC0JM-107ZJ1 | E CAP. | 100μF 6.3V M |
| C1808 | QETC1CM-106ZJ1 | E CAP. | 10μF 16V M |
| C1809 | QFN31HJ-103ZJ1 | M CAP. | 0.01μF 50V J |
| C1810 | QETC1CM-106ZJ1 | E CAP. | 10μF 16V M |
| C1811 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1812 | QETC1CM-106ZJ1 | E CAP. | 10μF 16V M |
| C1813 | QETC1HM-106ZJ1 | E CAP. | 10μF 50V M |
| C1814 | QETC1HM-106ZJ1 | E CAP. | 10μF 50V M |
| C1817 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1819 | QETC1EM-475ZJ1 | E CAP. | 4.7μF 25V M |
| C1831 | QETC1CM-106ZJ1 | E CAP. | 10μF 16V M |
| C1841 | QETC0JM-476ZJ1 | E CAP. | 47μF 6.3V M |
| C1842 | QETC0JM-476ZJ1 | E CAP. | 47μF 6.3V M |
| C1844 | QEK51HM-335GJ1 | E CAP. | 3.3μF 50V M |
| C1845 | QEK51HM-224GJ1 | E CAP. | 0.22μF 50V M |
| ⚠ C1901 | QCZ9014-472J1 | C CAP. | 4700pFAC125V P |
| ⚠ C1902 | QCZ9014-472J1 | C CAP. | 4700pFAC125V P |
| ⚠ C1903 | QCZ9014-472J1 | C CAP. | 4700pFAC125V P |
| ⚠ C1904 | QEZ0110-567R | E CAP. | 560μF 200V M |
| ⚠ C1905 | QET52CR-106J1 | E CAP. | 10μF 160V R |
| ⚠ C1906 | QFZ9025-104M | MF CAP. | 0.1μFAC125V M |
| ⚠ C1907 | QFZ9025-104M | MF CAP. | 0.1μFAC125V M |
| ⚠ C1908 | QET52CR-476J1 | E CAP. | 47μF 160V R |
| TRANSFORMER | | | |
| T1103 | A75588-B-T | AFC TRANS | |
| T1104 | A75899-A-T | CW TRANS. | |
| T1301 | A75196-A-T | 3.58 BP TRANS | |
| ⚠ T1521 | A46022-BM | HOR DRIVE TRANSF | |
| T1601 | A75583-A-T | S TAKE OFF TRANS | |

| SYMBOL NO. | PART NO. | PART NAME | REMARKS |
|---|---|---|---|
| TRANSFORMER | | | |
| T1602 | CE40121-101J1 | SIF TRANSF | |
| COIL | | | |
| L1101 | CE40143-R82 | PEAKING COIL | 0.82μH |
| L1102 | CELP003-R82Z | PEAKING COIL | 0.82μH |
| L1103 | A76186-15Z-T | PEAKING COIL | 15μH |
| L1104 | A76186-1.0-T | PEAKING COIL | 1.0μH |
| L1201 | A76186-56-T | PEAKING COIL | 56μH |
| L1202 | A76186-5.6-T | PEAKING COIL | 5.6μH |
| L1301 | A76186-2.2Z-T | PEAKING COIL | 2.2μH |
| L1521 | A76186-56Z-T | PEAKING COIL | 56μH |
| ⚠ L1523 | CE41124-00A | LINIARITY COIL | |
| L1524 | CE41169-002 | BEADS CODE | |
| L1525 | CE41169-002 | BEADS CODE | |
| L1702 | CE40041-220J1 | PEAKING COIL | 22μH |
| L1703 | CE40536-4R7FH | PEAKING COIL | 4.7μH |
| L1704 | CE40536-4R7FH | PEAKING COIL | 4.7μH |
| L1705 | CE40536-4R7FH | PEAKING COIL | 4.7μH |
| L1706 | CE40536-4R7FH | PEAKING COIL | 4.7μH |
| L1707 | CE40536-4R7FH | PEAKING COIL | 4.7μH |
| L1708 | A76186-2.2Z-T | PEAKING COIL | 2.2μH |
| L1831 | A76186-1.0-T | PEAKING COIL | 1.0μH |
| DIODE | | | |
| D1102 | RD8.2ES(B1)-Y# | ZENER DIODE | |
| D1103 | 1SS133-Y# | SI DIODE | |
| D1104 | 1SS133-Y# | SI DIODE | |
| D1201 | RD7.5E(B3)# | ZENER DIODE | |
| D1202 | 1SS133-Y# | SI DIODE | |
| D1203 | MA4150(L)-Y# | ZENER DIODE | |
| D1204 | 1SS133-Y# | SI DIODE | |
| D1205 | 1SS133-Y# | SI DIODE | |
| D1207 | 1SS133-Y# | SI DIODE | |
| D1208 | 1SS133-Y# | SI DIODE | |
| D1209 | 1SS133-Y# | SI DIODE | |
| D1210 | 1SS133-Y# | SI DIODE | |
| ⚠ D1421 | 1SR35-100-F# | SI DIODE | |
| D1422 | 05AZ75# | ZENER DIODE | |
| D1501 | MA4068(L)-Y# | ZENER DIODE | |
| D1502 | MA4091(M)-Y# | ZENER DIODE | |
| ⚠ D1503 | MA4068(N)V1-Y | ZENER DIODE | |
| ⚠ D1504 | 1SS81-Y# | SI DIODE | |
| ⚠ D1521 | RM2C-LFA1# | SI DIODE | |
| ⚠ D1532 | RGP10J# | SI DIODE | |
| ⚠ D1533 | RGP10J# | SI DIODE | |
| ⚠ D1534 | RGP10J# | SI DIODE | |
| ⚠ D1536 | RH1S-LFA1# | SI DIODE | |
| ⚠ D1537 | 1SS81-Y# | SI DIODE | |
| D1702 | 1SS133-Y# | SI DIODE | |
| D1703 | 1SS133-Y# | SI DIODE | |
| D1704 | 1SS133-Y# | SI DIODE | |
| D1705 | 1SS133-Y# | SI DIODE | |
| D1706 | 1SS133-Y# | SI DIODE | |
| D1707 | 1SS133-Y# | SI DIODE | |
| D1710 | 1SS133-Y# | SI DIODE | |
| D1711 | 1SS133-Y# | SI DIODE | |
| D1712 | 1SS133-Y# | SI DIODE | |
| D1713 | 1SS133-Y# | SI DIODE | |
| D1714 | GL-5HD23 | L E D | Power |
| D1716 | 1SS133-Y# | SI DIODE | |

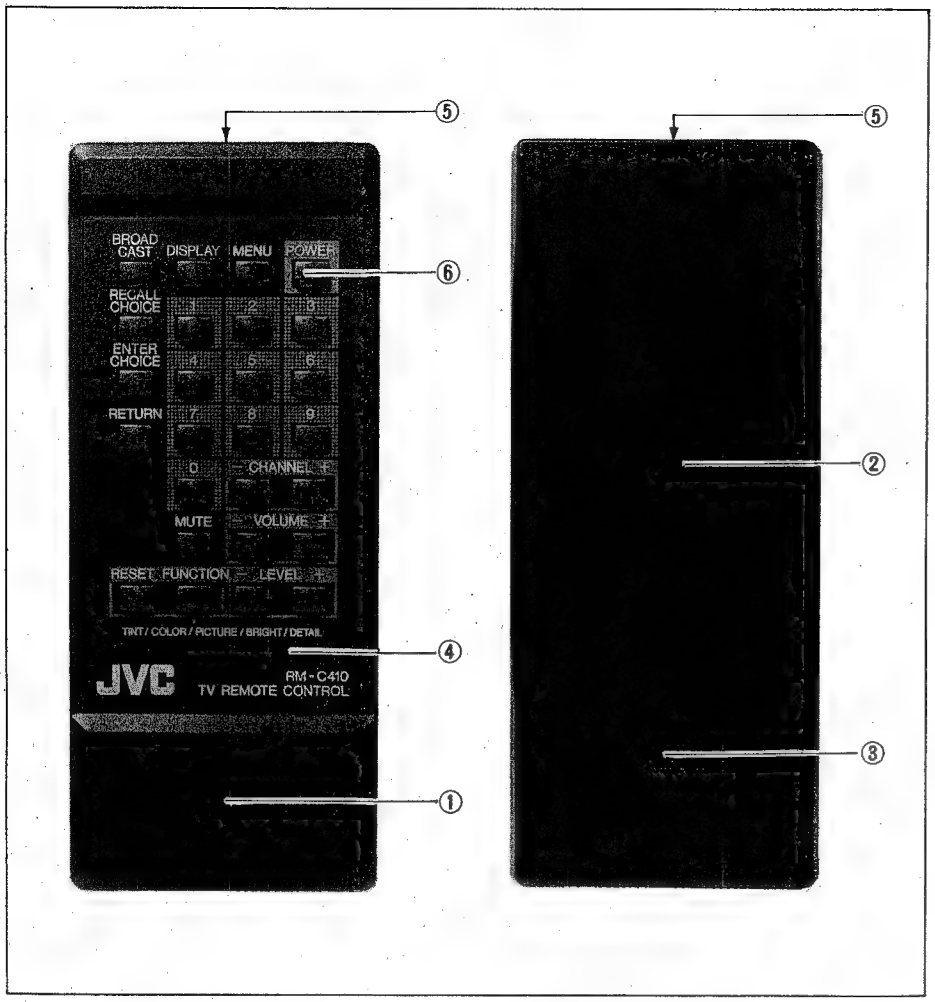
| | SYMBOL NO. | PART NO. | PART NAME | REMARKS |
|---|---|---|---|---|
| | DIODE | | | |
| | D1721 | 1SS133-Y# | SI DIODE | |
| | D1722 | 1SS133-Y# | SI DIODE | |
| | D1723 | 1SS133-Y# | SI DIODE | |
| | D1724 | 1SS133-Y# | SI DIODE | |
| | D1725 | 1SS133-Y# | SI DIODE | |
| | D1727 | 1SS133-Y# | SI DIODE | |
| | D1728 | 1SS133-Y# | SI DIODE | |
| | D1730 | 1SS133-Y# | SI DIODE | |
| ⚠ | D1791 | 1SS146-Y# | SI DIODE | |
| ⚠ | D1792 | 1SS146-Y# | SI DIODE | |
| ⚠ | D1793 | 1S1887ALC-7# | SI DIODE | |
| | D1794 | MA4062 (M) -Y# | ZENER DIODE | |
| | D1795 | 1SS133-Y# | SI DIODE | |
| | D1796 | 1SS133-Y# | SI DIODE | |
| | D1803 | MA4051 (L) -Y# | ZENER DIODE | |
| | D1831 | 1SS133-Y# | SI DIODE | |
| | D1832 | MA4082 (M) -Y# | ZENER DIODE | |
| | D1833 | MA4082 (M) -Y# | ZENER DIODE | |
| | D1841 | PD49PI | PHOTO DIODE | |
| ⚠ | D1901 | 1S1887ALC-7# | SI DIODE | |
| ⚠ | D1902 | 1S1887ALC-7# | SI DIODE | |
| ⚠ | D1903 | 1S1887ALC-7# | SI DIODE | |
| ⚠ | D1904 | 1S1887ALC-7# | SI DIODE | |
| ⚠ | D1905 | 1S1887ALC-7# | SI DIODE | |
| | TRANSISTOR | | | |
| | Q1101 | 2SC1906# | SI. TRANSISTOR | |
| | Q1102 | 2SA933 (Q, R) -Y# | SI. TRANSISTOR | |
| | Q1103 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| | Q1201 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| | Q1202 | 2SA933 (Q, R) -Y# | SI. TRANSISTOR | |
| | Q1204 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| ⚠ | Q1521 | 2SC2482V# | SI. TRANSISTOR | or 2SC3187 |
| ⚠ | Q1522 | 2SD1455-07 | SI TRANSISTOR | H. OUT |
| | Q1701 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| | Q1702 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| | Q1703 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| | Q1704 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| | Q1705 | 2SC1740 (Q, R) Y# | SI. TRANSISTOR | |
| | Q1706 | 2SA933 (Q, R) -Y# | SI. TRANSISTOR | |
| ⚠ | Q1791 | 2SC2073# | SI. TRANSISTOR | |
| | Q1792 | 2SC3271 (N, P) # | SI. TRANSISTOR | |
| | IC | | | |
| | IC1101 | M51346AP# | I. C. (M) | |
| | IC1201 | TA8601AN | I. C. | |
| | IC1321 | AN5862K# | I. C. | |
| ⚠ | IC1421 | AN5521# | I C | |
| ⚠ | IC1621 | AN5265# | I. C. | |
| | IC1701 | MN152666JMC-1 | I C | |
| | IC1702 | MN1280-K | I. C. (M) | |
| | IC1801 | UPC1486C# | I. C. | |
| | IC1831 | MN12C25 | I. C. (M) | |
| | IC1841 | UPC1490HA# | I. C. | |
| ⚠ | IC1901 | STR3130# | I. C. | |
| | OTHERS | | | |
| | CF1101 | CE40124-45A | CERAMIC TRAP | |
| | CF1501 | CSB503F17 | C RESONATOR | |
| | CF1601 | A74603-C | CERAMIC FILTER | |

| | SYMBOL NO. | PART NO. | PART NAME | REMARKS |
|---|---|---|---|---|
| | OTHERS | | | |
| | DL1201 | CE41108-001 | DELAY LINE | |
| ⚠ | F1901 | QMF66U1-5R0S | FUSE | 5. 0A |
| ⚠ | F1902 | QMF53U1-1R25S | FUSE | 1. 25A |
| ⚠ | LF1901 | CE40247-00BJ1 | LINE FILTER | |
| ⚠ | RY1901 | CESK006-003 | RELAY | |
| | SF1101 | CE40953-201 | SAW FILTER | |
| | S1201 | QSL4A13-C02 | LEVER SWITCH | Service |
| | S1401 | QSL4A13-C02 | LEVER SWITCH | V. Center |
| | S1701 | QSP1A11-C09J1 | PUSH SWITCH | Function |
| | S1702 | QSP1A11-C09J1 | PUSH SWITCH | UP |
| | S1703 | QSP1A11-C09J1 | PUSH SWITCH | Down |
| | S1704 | QSP1A11-C09J1 | PUSH SWITCH | Power |
| | S1705 | QSP1A11-C09J1 | PUSH SWITCH | VOL△ |
| | S1706 | QSP1A11-C09J1 | PUSH SWITCH | VOL▽ |
| ⚠ | TH1901 | CE40595-001 | TH POSISTOR | |
| ⚠ | TU1701 | AN7042EP-A04# | TUNER | |
| | X1301 | A76351-D-T | X-TAL | |
| | X1701 | CE41216-001 | X TAL | |

## SX-3046A(T2) (CRT SOCKET PCB ASS'Y)

| | SYMBOL NO. | PART NO. | PART NAME | REMARKS |
|---|---|---|---|---|
| | VARIABLE RESISTOR | | | |
| | R3104 | QVPE805-502J1 | V R (B CUT OFF) | 5kΩ B |
| | R3105 | QVPE805-502J1 | V R (G CUT OFF) | 5kΩ B |
| | R3106 | QVPE805-502J1 | V R (R CUT OFF) | 5kΩ B |
| | R3111 | QVPE805-201J1 | V R (G DRIVE) | 200 Ω B |
| | R3112 | QVPE805-201J1 | V R (R DRIVE) | 200 Ω B |
| | RESISTOR | | | |
| ⚠ | R3113 | QRG029J-153AJ1 | OM R | 15kΩ 2W J |
| ⚠ | R3114 | QRG029J-153AJ1 | OM R | 15kΩ 2W J |
| ⚠ | R3115 | QRG029J-153AJ1 | OM R | 15kΩ 2W J |
| ⚠ | R3116 | QRC122K-332 | COMP. R | 3. 3kΩ 1/2W K |
| ⚠ | R3117 | QRC122K-332 | COMP. R | 3. 3kΩ 1/2W K |
| ⚠ | R3118 | QRC122K-332 | COMP. R | 3. 3kΩ 1/2W K |
| ⚠ | R3125 | QRD161J-154YJ1 | C R | 150kΩ 1/6W J |
| | CAPACITOR | | | |
| ⚠ | C3107 | QCZ0121-102J1 | C CAP. | 0. 001μF 3000V P |
| | COIL | | | |
| ⚠ | L3101 | QQL043K-181 | PEAKING COIL | 180μH |
| ⚠ | L3102 | CJ30030-038 | HEATER CHOKE | |
| | DIODE | | | |
| | D3101 | 1SS83FA# | SI DIODE | |
| | D3102 | 1SS83# | SI DIODE | |
| | D3103 | 1SS83# | SI DIODE | |
| | TRANSISTOR | | | |
| ⚠ | Q3101 | 2SC3271 (N, P) # | SI. TRANSISTOR | B. OUT |
| ⚠ | Q3102 | 2SC3271 (N, P) # | SI. TRANSISTOR | G. OUT |
| ⚠ | Q3103 | 2SC3271 (N, P) # | SI. TRANSISTOR | R. OUT |
| | OTHERS | | | |
| ⚠ | | A75522-H | CRT SOCKET | |

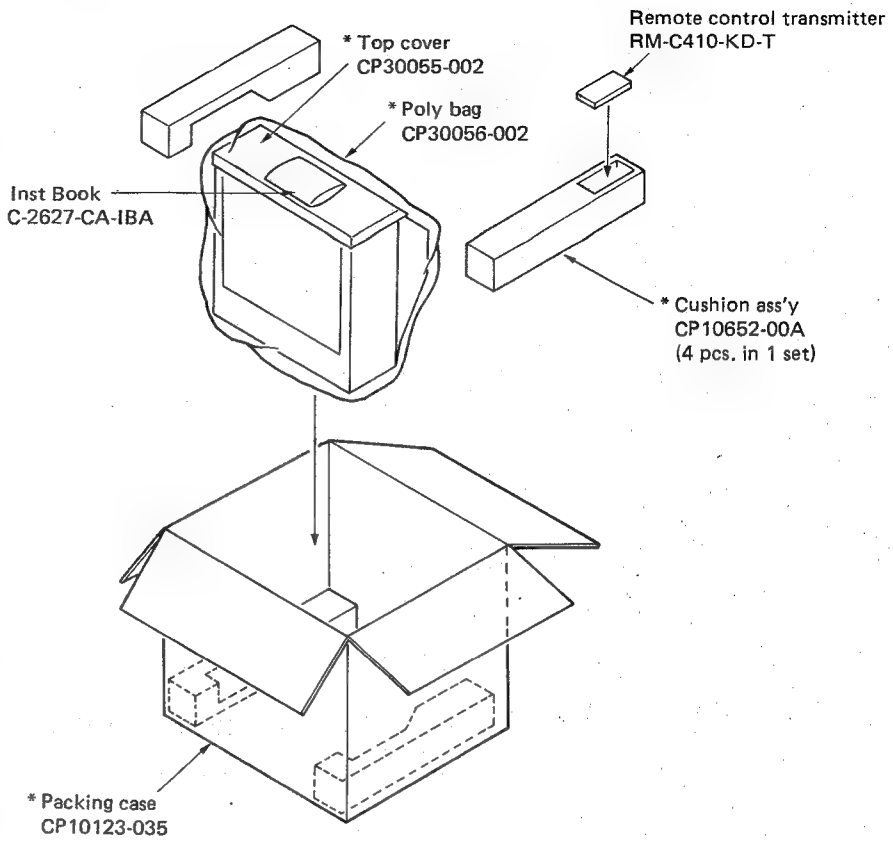
## ■ REMOTE CONTROL TRANSMITTER (RM-C410-KD-T)




| VIEW NO. | SYMBOL NO. | ⚠ | PART NO. | PART NAME | REMARK |
|---|---|---|---|---|---|
| 1 | | | UR64CS119 | Front Case | |
| 2 | | | UR64CS120 | Bottom Case | |
| 3 | | | UR64EC121 | Battery Cover | |
| 4 | | | UR64PP404A | Panel | |
| 5 | | | UR64SB125 | Filter | |
| 6 | | | UR64BT123B | Button | (x26) |

# Ⅷ. PACKING DIAGRAM

* : Country of Origin




## ATTACHED MATTERS

SVC Center List . . . . . BT-20071A
Warranty Card . . . . . BT-20025J
Rod Antenna . . . . . CM31850-00B-T
UHF Loop Antenna . . . . . A31284-FS-T
75 Ω Conv. Adaptor . . . . . CE40128-002J1

Shield Ant. Box . . . . . CE41347-002

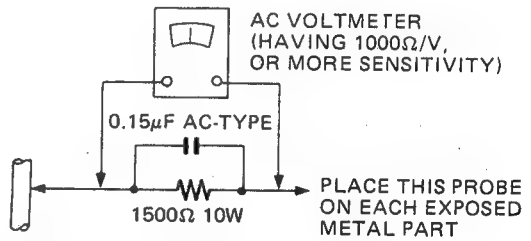
# SAFETY PRECAUTION

1. The design of this product contains special hardware, many circuits and components specially for safety purposes.
   For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of receiver should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in television sets have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by ( ⚠ ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual many create shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**
   The chassis and any sub-chassis contrained in some product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some product when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and NEUTRAL side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (primary: ⊥ ) side GND and the NEUTRAL (secondary: ⏚ ) side GND.
   Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time.
   If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the $B_1$ setting should be checked or adjusted (See ADJUSTMENT OF $B_1$ VOLTAGE).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approvided by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
10. **Isolation Check**
    **(Safety for Electrical Shock Hazard)**
    After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, channel selector knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1,100V AC (r.m.s.) for a period of one second.
[. . . . . Withstand a voltage of 1,100V AC (r.m.s.) to an appliance rated up to 120V, and 3,000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.]
This method of test requires a test equipment not generally found in the service trade.

(2) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

- **Alternate Check Method**
  Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.).
  Measure the AC voltage across the resistor with the AC voltmeter.
  Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).




11. **High voltage hold down circuit check.**
    After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.
    See item **"How to check the high voltage hold down circuit".**

# PURITY, CONVERGENCE AND WHITE BALANCE

*** The locations of SERVICE SWITCH, SCREEN VR, CUT-OFF VR and DRIVE VR are described in the ALIGNMENT LOCATION of the schematic diagram.**

## PICTURE TUBE

The picture tube is a precision in-line gun type. For this picture tube, dynamic convergence is carried out by a precision deflection yoke which eliminated the use of convergence yoke and convergence circuit. The adjustment of picture tube is therefore made easier as only the adjustment of static convergence by using a magnetic is enough. The deflection yoke and purity/convergency magnets assembly has been set at the factory and requires no field adjustments.
However, should the assembly be accidentally jarred or tampered with, some or all adjustments may be necessary.

## COLOR PURITY & VERTICAL CENTER

Loosen yoke retaining screw (Fig. B-1). With a sharp knife cut between the picture tube and the bond. Remove wedges completely and clean off dried adhesive from the picture tube. PAINT is used to lock the tabs of the purity/convergence magnet assembly in place (Fig. B-1). The paint must be removed with the end of a screwdriver before any adjustments are attempted.

(As to models equipped with a magnet locking ring, beforhand loosen it.)

1. Select no signal UHF channel.
2. Let the purity tabs come in line horizontally as is shown in Fig. B-2. A long tab should be in the same direction as the other short tab.
3. Move the yoke slowly backward.
4. Turn the GREEN CUT-OFF VR to maximum and the RED and BLUE CUT-OFF VR to minimum. Then adjust the SCREEN VR so that the green band can be seen best. (Fig. B-3.)
5. Rotate the two tabs in the opposite directions and with them kept at an angle, together in either direction so that the green band is centered on the picture tube.
6. Check the vertical center position by displaying a horizontal line. Unless correct, bring it to the center by rotating the two tabs, kept at an angle, together in either direction. (Fig. B-4)
7. Repeat steps 5 and 6 alternately until the green band and the vertical center come to the center.
8. Move the yoke slowly towards the bell of the tube so that the whole surface of the picture tube is filled with a green pure raster.
9. Turning RED or BLUE CUT-OFF VR to maximum and GREEN CUT-OFF VR to minimum, make sure of a red or blue pure raster.
10. Secure yoke retaining screw (do not install wedges at this time).

(As to models equipped with a magnet locking ring, secure it and keep six magnets from moving even if it is touched slightly.)

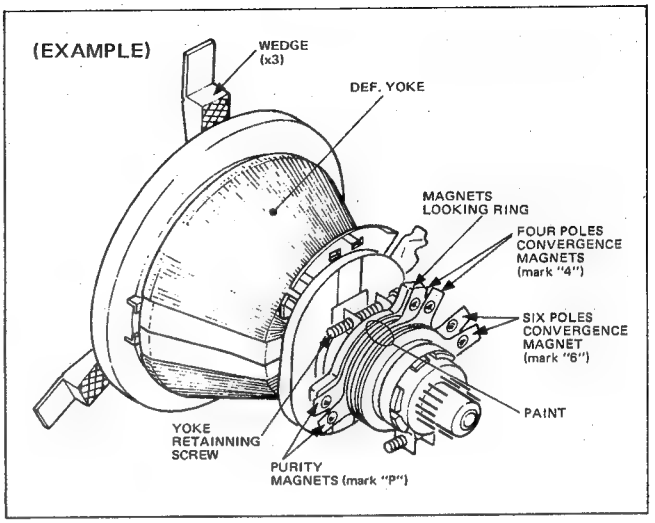
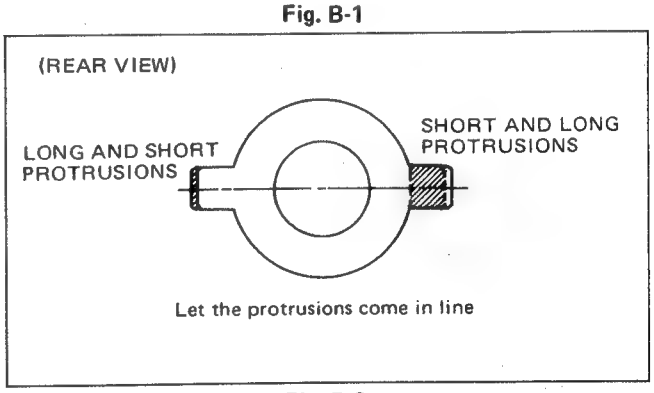
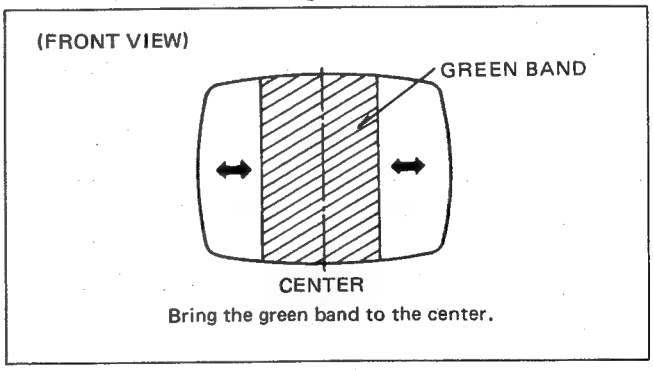



Fig. B-1



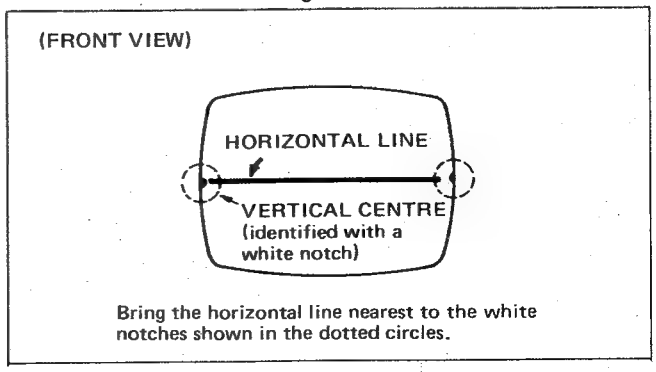

Let the protrusions come in line

Fig. B-2




Bring the green band to the center.

Fig. B-3




Bring the horizontal line nearest to the white notches shown in the dotted circles.

## STATIC CONVERGENCE & DYNAMIC CONVERGENCE

1. Connect a crosshatch generator to the antenna terminals and adjust BRIGHTNESS and CONTRAST control for a distinct pattern.
2. Adjust the convergence around the edges of the picture tube by tilting the yoke, up-down and left-right, and temporarily install one wedge at the top of the yoke. (Fig. B-7, 8, 9)
3. Rotate the front pair of tabs (four pole convergence magnet) as a unit to minimize the separation of the red and blue lines around the center of the screen. To adjust the convergence of red and blue, vary the angle between the tabs. (Fig. B-5)
4. Rotate the rear pair of tabs (six pole convergence magnets) as a unit to minimize the separation of the magenta (R/B) and green lines. (Fig. B-6)
5. Adjust the spacing of the rear tabs to converge the magenta and green lines.
6. Apply paint to fix six magnets
   (As to models equipped with a magnet locking ring, tighten it.)
7. Remove the wedge installed temporarily on the yoke.
8. Tilting the angle of the yoke up, down and sideways, and adjust the yoke so as to obtain the circumference convergence. (Fig. B-8, 9)
9. Insert three wedges to the position as shown in Fig. B-10 to obtain the best circumference convergence.
10. Wedge has a backing of double sided adhesive tape. Therefore, tear off one side of adhesive tape, and fix the wedges.
11. White balance adjustment (Black & White tracking) can now be performed.

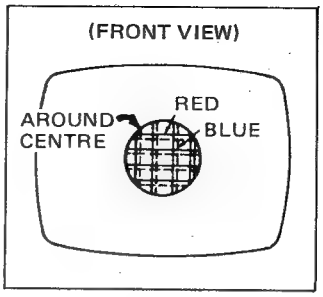



Fig. B-5

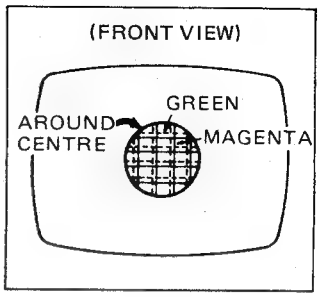



Fig. B-6

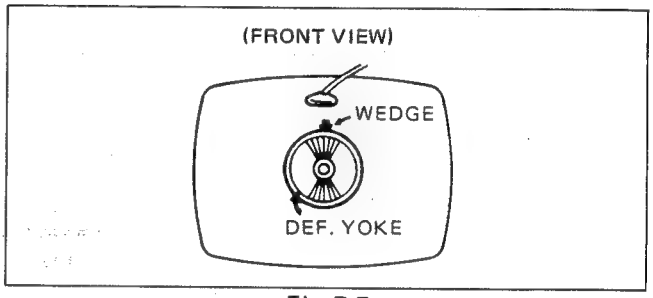



Fig. B-7

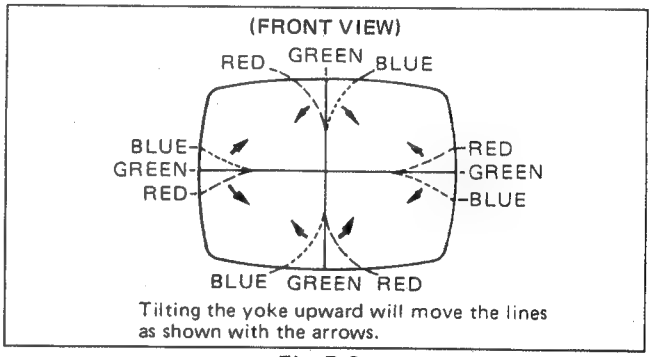



Fig. B-8

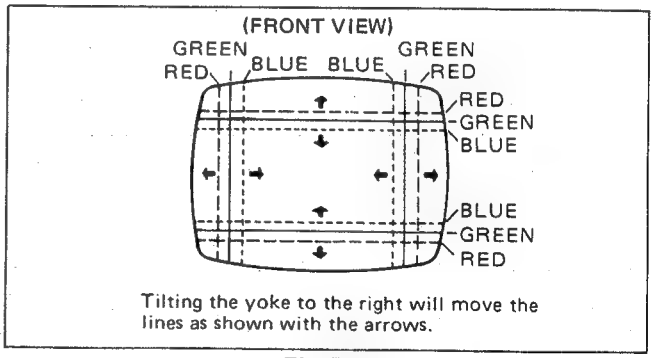



Fig. B-9

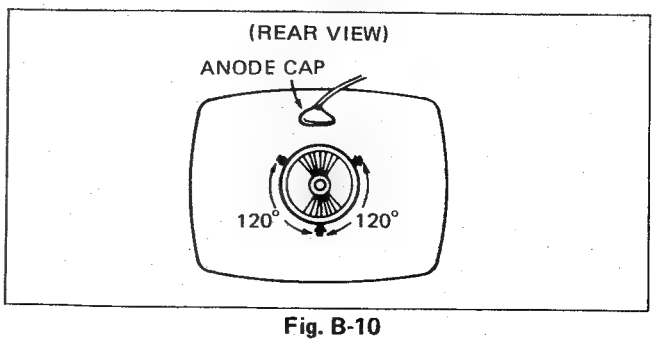



Fig. B-10

## WHITE BALANCE ADJUSTMENT (Black and White Tracking)

1. Display a monochrome pattern.
2. Set the RED and GREEN DRIVE VR for their mechanical center.
3. Turn the RED, GREEN and BLUE CUT-OFF VRs and the SCREEN VR fully counterclockwise.
4. Display a horizontal line. (refer to "HORIZONTAL LINE")
5. Turn SCREEN VR slowly clockwise until a very faint horizontal line appears.
6. Turn the CUT-OFF VRs of the color which has appeared first, clockwise by about 10° and then adjust the SCREEN VR again so that the color may shine faintly.
7. Turn the other color CUT-OFF VRs slowly clockwise until a reasonable white line appears.
8. Return the monochrome pattern. (refer to "HORIZONTAL LINE")
9. Adjust the RED and GREEN DRIVE VRs for best white highlights.

# SERVICE ADJUSTMENTS

*** ADJUSTMENTS EXCEPT THE FOLLOWING DESCRIPTION ARE MENTIONED IN THE SERVICE MANUAL TEXT.**
*** SOME ITEM OF ADJUSTMENT METHOD IS NOT APPLICABLE TO SOME MODEL. IN SUCH A CASE OMIT THE ITEM.**
* Adjustments except the following description are mentioned in the service manual text.
* Use the undermentioned adjustment methods after repair or for readjustment of misadjustment.
* The locations of the under mentioned adjustment parts are described in the "Alignment Location" of the Schematic Diagram.
* Test point pins are not indicated in the printed circuit board, but in the Schematic Diagram under certain circumstances. In this case, look for test points, which are indicated in the Schematic Diagram, on the printed circuit board; and use it for test points even if there are not test point pins.

## $B_1$ VOLTAGE

Confirm that $B_1$ voltage exists between TP-91 and GND.

**NOTE**

1. Some model's power circuit is partly different in the GND.
   The difference of the GND is shown by the LIVE (primary: ⊥ ) side GND and NEUTRAL (secondary: ⏚ ) side GND.
   In this case, use a suitable ground by checking whether LIVE side GND or NEUTRAL side GND in each schematic diagram.
2. **Use isolation transformer when hot chassis.**
   The chassis and any sub-chassis contained in some product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some product when the HOT chassis is exposed.
3. The tester used should be periodically calibrated at 20kΩ/V.

## SUB CONTRAST AND SUB BRIGHT

1. Set the CONTRAST, BRIGHT, PICTURE, and the COLOR knobs to the central position respectively (where they click).
   If STANDARD BUTTON provided, press it.
   (If EE SWITCH provided, Select the EE SWITCH OFF.)
2. Then align both the SUB CONTRAST VR and SUB BRIGHT VR until an ideal picture is obtained.

## BLACK LEVEL AND SUB BRIGHT

- BLACK LEVEL and SUB BRIGHT VR are correlated. Do not adjust them carelessly.

1. Set the CONTRAST, BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).
   If STANDARD BUTTON provided, press it.
   (IF EE SWITCH provided, select the EE SWITCH OFF.)
2. Turn the BLACK LEVEL VR fully clockwise.
   Receive a high-contrast picture and adjust brightness with the SUB BRIGHT VR in the usual way.
   (Turn the SUB BRIGHT VR while observing vertical flyback line; stop turning it just before vertical flyback line turns black.)
3. Turn the BLACK LEVEL VR counterclockwise, and adjust it so that black objects appear pute black and vivid.
4. Confirm the adjusted status on every channel.

## SUB TINT AND SUB COLOR

1. Set the CONTRAST, BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).
   If STANDARD BUTTON provided, press it.
   (If EE SWITCH provided, select the EE SWITCH OFF.)
2. Adjust the SUB TINT VR and SUB color VR to obtain human skin natural color.

## SUB PICTURE

1. Set the CONT., BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).
   * If STANDARD BUTTON provided, press it. (If EE switch provided, select the EE SW, OFF).
2. Adjust the SUB PICTURE VR until an ideal picture is obtained.

## 3.58 MHz TRAP

1. Connect a color bar generator to the antenna terminal.
2. Connect oscilloscope probe to DELAY LINE output side.
3. Adjust the 3.58 MHz TRAP (T201) so that the 3.58 MHz signal is minimized. (Fig. C-1)

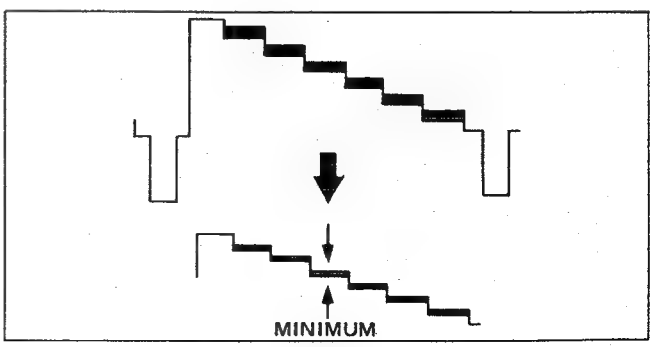



**Fig. C-1**

* Some item of adjustment method is NOT applicable to some model. In such a case omit the item.
* Adjustments except the following description are mentioned in the service manual test.
* Use isolation transformer when HOT chassis.

## COMB FILTER

1. Connect a color bar generator to the antenna terminal.
2. Connect an oscilloscope to COMB FILTER "Y" output position (TP-42). Magnify the color signal portions of the color bar waveform so that the 3.58 MHz elements become easy to observe.
3. Adjust PHASE Transf. (T201 and T202), and minimize the 3.58 MHz elements.
4. Regulate the COMB FILTER adjustment VR to further minimize the 3.58 MHz elements. (Fig. C-1)
5. Repeat steps 3 and 4 to fully minimize the 3.58 MHz elements. (Fig. C-1)

## VERTICAL HEIGHT AND LINEARITY

1. Set color bar generator to crosshatch or a pattern with which symmetry can be checked.
2. Reduce the vertical size with the VERTICAL HEIGHT VR.
3. Adjust the vertical symmetry with the VERTICAL LINEARITY VR.
4. Readjust the VERTICAL HEIGHT so that the picture extends to normal size.

## VERTICAL HEIGHT

1. Set the color bar generator to crosshatch or pattern with which symmetry can be checked.
2. Adjust the vertical symmetry with the VERTICAL HEIGHT VR.

## NOISE (RF A.G.C. Delay)

This control is set at the factory and rarely requires any adjustment. If a snowy picture appears on a medium to weak station adjust the noise control.

1. Turn control fully clockwise (or counterclockwise), maximum noise in picture.
2. Slowly turn VR counterclockwise (or clockwise) until snow or noise in picture just disappears.

   **Note:** Check operation on strong channels. If overloading occurs (bending, poor color, loss of color sync, etc.) make compromise adjustment.

## 4.5 MHz TRAP

1. Tune in a local color station preferably a program with the least amount of movement and continuous audio.
2. Adjusting the V. IF DET. OUT Transf. (T105) so that beating with sound signal disappears.

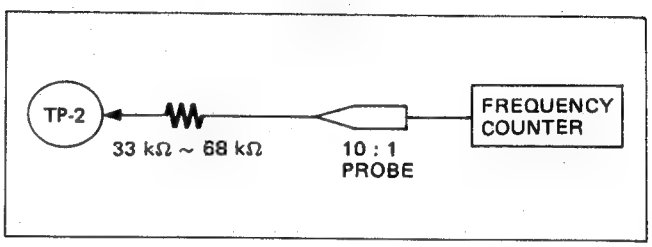
## HORIZONTAL WIDTH

Adjust H. WIDTH control coil by turning it with a hexagonal adjusting bar only if RIGHT and LEFT sides of pictures can't be seen.

## FOCUS

Adjust FOCUS VR for best overall definition and picture detail at normal brightness and contrast.

## REFERENCE FREQUENCY OSCILLATOR




Connect as shown above and adjust C205 (ceramic trimmer capacitor) so that the oscillation frequency is 4500.000 kHz ± 20 Hz or receive UHF AIR at AFC OFF position and adjust C205 so that the AIR becomes just tuning.

## HORIZONTAL OSCILLATOR

1. Set the H. FREQ. VR to the mechanical center position.
2. Connect the jumper clip between TP-33B and earth.
3. Adjust the H. FREQ. VR until picture is in view and locks or drift slowly back and forth.
4. Remove the jumper clip.
5. Make sure that the set maintains horizontal sync, when channels are switched.

## COLOR SYNC.

1. Receive a color bar signal.
2. Connect two jumper wires between TP-50 and TP-E and between TP-51A and TP-51B.
3. While rotating a TRIMMER CONDENSER using a non-metallic screwdriver, adjust it until the horizontal striped patterns with color become stationary or are slowly moving.
4. Remove jumper clips.
5. Confirm that color sync is not disrupted when channels are switched.

## H. CENTER

Centering is completed at the factory, although it may become distorted when CRT is changed.

In such case, selecting the H. CENTER SWITCH moves the picture left or right.

(Some model have H. CENTER TIP.)

## VERTICAL CENTER

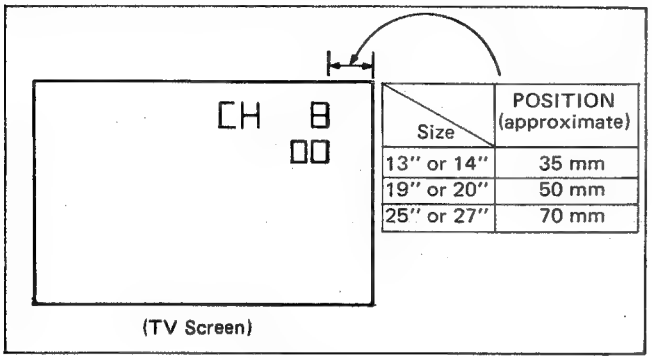
Centering is completed at the factory, although it may become distorted when CRT is changed.

In such case, selecting the V. CENTER SWITCH moves the picture up or down. (Some model have V. CENTER TIP).

* Some item of adjustment method is NOT applicable to some model. In such a case omit the item.
* Adjustments except the following description are mentioned in the service manual test.
* Use isolation transformer when HOT chassis.

## ON SCREEN

1. Display characters on the screen.
2. As shown in the Fig. C-2, adjust the character positions with the CLK VR (On screen adj. VR).
3. Confirm that the characters are also located approximately at the same positions on other channels.




| Size | POSITION (approximate) |
|---|---|
| 13" or 14" | 35 mm |
| 19" or 20" | 50 mm |
| 25" or 27" | 70 mm |

Fig. C-2

## HORIZONTAL LINE

- CUT-OFF SERVICE SWITCH
  Select the CUT-OFF SERVICE SWITCH from N to S and a HORIZONTAL LINE will appear.
  (When returning a monochrome pattern select the CUT-OFF SERVICE SWITCH from S to N and a monochrome pattern will appear.)
- CUT-OFF SERVICE TIP
  Reconnect the CUT-OFF SERVICE TIP from N to S and a HORIZONTAL LINE will appear.
  (When returning a monochrome pattern reconnect the CUT-OFF SERVICE TIP from S to N and a monochrome pattern will appear.)
- VIDEO CUT WIRER
  Connect a jumper wire between TP-35A and TP-35B, after removing the VIDEO CUT WIRE, and a monochrome pattern will appear.
  (Reconnect the VIDEO CUT WIRE to the normal position, after removing the jumper wire from TP-35A and TP-35B.)

## ■ V. IF

1. Connect a color bar generator to antenna terminal. (When the signal is too strong, use the attenuator.)
2. Connect DC voltmeter (or tester) between AGC terminal of E. Tuner and earth.
3. Rotate NOISE VR so that RF. AGC voltage becomes DC 4.5 V ± 1 V.
4. Adjust CW transformer so that the indicator becomes to minimum and also confirm that picture in optimum conditions is obtained.
5. Confirm the adjustment of NOISE VR.

## ■ RF. AFC

1. Connect a color bar generator to antenna terminal.
2. Adjust AFC transformer so that the voltage of TP-16 becomes DC 7.0 V ± 0.5 V.
   (Confirm to swing between about 9 V and 4 V previously.)

## ■ S. IF

1. Tune in a local station preferably a program with the continuous audio.
2. Adjust TAKE OFF Transf. (T601) and S. IF Transf. (T602) so that the sound becomes to maximum without distortion.

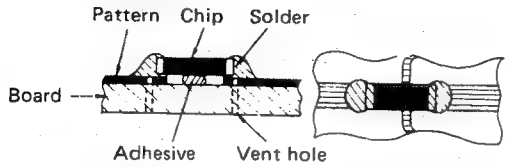
# REPLACEMENT OF THE CHIP

* **CHIPS ARE NOT USED ON CERTAIN MODELS. REFER TO THE DESCRIPTIONS ON THIS PAGE ONLY WHEN WORKING ON MODELS ON WHICH CHIPS ARE EMPLOYED.**

* Replacement of the chip on printed circuit board can be performed easily as follows.

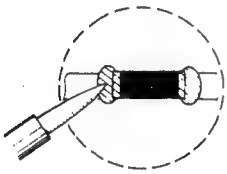
## 1 When mounted

**[Resistor · Capacitor]**

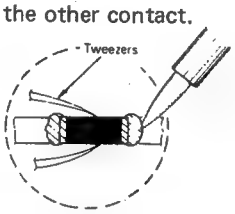



## 2 Removal of the chip

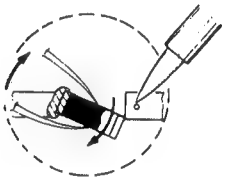
(1) Remove either of the soldered contacts.



(2) Hold the chip with tweezers and remove the other contact.




(3) Work the chip free from the adhesive with tweezers.

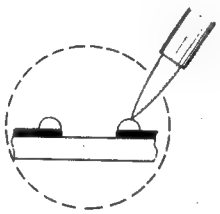


## 3 Preheating and soldering of chip pieces

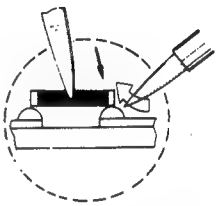
Be sure to preheat chip pieces (except the transistor) especially the capacitor before soldering with hot air, about 150°C (hair dryer or such can be used) for about 2 minutes. Then, immediately solder with an iron of about 30W.

## 4 Replacing the chip pieces

(1) Apply the solder to the board first.

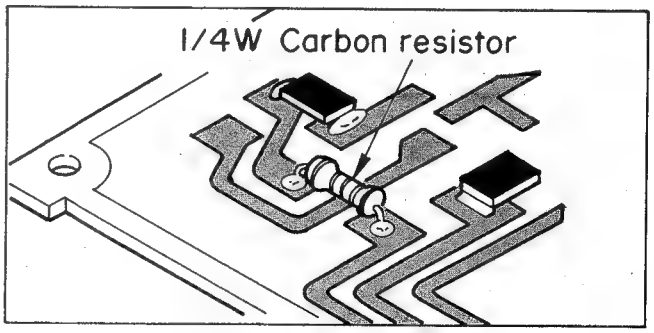


(2) Hold the chip with tweezers and solder it in place, hold the iron at a 45° angle when soldering.



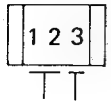
■ Discrete parts can be substitutionally mounted as shown in the figure on the right.
Mounting is also possible by passing the wires from the board front side (parts side) through the chip soldering hole (vent hole of registration part).
Substitute parts are as follows.

- Chip Metal Glaze Resistor
  → Carbon Resistor 1/4W ±5%
- Chip Ceramic Capacitor
  → Ceramic Capacitor 50V ±5%




■ **Decoding of chip parts constant terms**

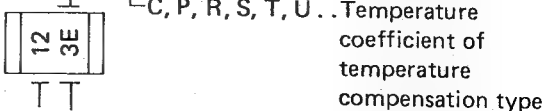
< Chip Metal Glaze Resistor >




Constant term: 1 2
Multiplier: 3

$12 \times 10^3 = 12000\Omega = 12k\Omega$

< Chip Ceramic Capacitor >




Constant term: 12
Multiplier: 3E

$12 \times 10^3 = 12000pF = 0.012\mu F$

# REPLACEMENT PARTS LIST INFORMATION

*** UTILIZE THE INFORMATION ON THIS PAGE IN COMBINATION WITH THE REPLACEMENT PARTS LIST. WHEN ORDERING REPLACEMENT PARTS PLEASE SPECIFY THE PART NUMBER AS SHOWN IN THIS LIST INCLUDING PART NAME, AND MODEL NUMBER. COMPLETE INFORMATION WILL HELP EXPEDITE THE ORDER.**

PRODUCT SAFETY NOTE
Components identified by the ⚠ symbol in the PARTS LIST and the shaded areas on the Schematic have special characteristics important to safety. Before replacing any of these components read carefully the **SAFETY PRECAUTION** on Page A of this Service Manual. DO NOT degrade the safety of the set through improper servicing.

## 1. ABBREVIATED WORD OF RESISTORS AND CAPACITORS

**RESISTOR**

| | | |
|---|---|---|
| C R | : | Carbon Resistor |
| Comp. R | : | Composition Resistor |
| OM R | : | Oxide Metal Film Resistor |
| V R | : | Variable Resistor |
| MF R | : | Metal Film Resistor |
| CMF R | : | Coating Metal Film Resistor |
| UNF R | : | Unflammable Resistor |
| F R | : | Fusible Resistor |
| CH MG R | : | Chip Metal Glaze Resistor |

**CAPACITOR**

| | | |
|---|---|---|
| C Cap. | : | Ceramic Capacitor |
| M Cap. | : | Mylar Capacitor |
| E Cap. | : | Electrolytic Capacitor |
| BP E Cap. | : | Bi-Polar (or Non-Polar) Electrolytic Capacitor |
| MM Cap. | : | Metalized Mylar Capacitor |
| PP Cap. | : | Polypropylene Capacitor |
| MPP Cap. | : | Metalized PP Capacitor |
| PS Cap. | : | Polystyrol Capacitor |
| Tan. Cap. | : | Tantal Capacitor |
| CH C Cap. | : | Chip Ceramic Capacitor |

## 2. FOLLOWING RESISTORS AND CAPACITORS OF STANDARD ELECTRICAL COMPONENTS ARE OMITTED FROM THIS PARTS LIST. EACH PART NUMBER OF THESE STANDARD REPLACEMENT COMPONENTS IS DEFINED AS FOLLOWS.

**Carbon Resistor (C R): Lead form ( —□□□— )**

| Rating | Part No. |
|---|---|
| ¼W | QRD141J-□□□ (CR — ¼W — Tolerance — Lead form — Constant term) |
| ½W | QRD121J-□□□ |

**Composition Resistor (Comp. R): Lead form ( —□□□— )**

| Rating | Part No. |
|---|---|
| ½W | QRC121K-□□□ (Comp. R — ½W — Tolerance — Lead form — Constant term) |

**Mylar Capacitor (M Cap.): Lead form ( ◇ )**

| Withstand Voltage | Part No. |
|---|---|
| 50V | QFM41HK-□□□ (M Cap. — Lead form — 50V — Tolerance — Constant term) |
| 100V | QFM42AK-□□□ |
| 200V | QFM42DM-□□□ |

**Ceramic Capacitor (C Cap.): Lead form ( ◇ )**

| Withstand Voltage | Parts No. |
|---|---|
| 25V | QCS11EJ-□□□ (C Cap. — Lead form — 25V — Tolerance — Constant term) |
| 50V | QCS11HP-□□□ |
| 500V | QCS12HP-□□□ |

**Electrolytic Capacitor (E Cap.): Lead form ( ◇ )**

| Withstand Voltage | Parts No. |
|---|---|
| 6.3V | QET40JR-□□□ (E Cap. — Lead form — 6.3V — Tolerance — Constant term) |
| 10V | QET41AR-□□□ |
| 16V | QET41CR-□□□ |
| 25V | QET41ER-□□□ |
| 50V | QET41HR-□□□ |

**Chip Metal Glaze Resistor (CH MG R)**

| Chip name | Chip No. | Substitutional Part No. |
|---|---|---|
| CH MG R | QRS148J-□□□ (CH MG R — 1/4W — Chip — Tolerance — Constant term) | QRD141J-□□□ CR 1/4W ±5% |

**Chip Ceramic Capacitor (CH C Cap)**

| Chip name | Chip No. | Substitutional Part No. |
|---|---|---|
| CH C Cap | QCS81HJ-□□□ (CH C Cap — Chip — 50V — Tolerance — Constant term) | QCS11HJ-□□□ C Cap 50V ±5% |

## 3. DECODING OF TOLERANCE AND CONSTANT TERM

TOLERANCE

J: ±5%  K: ±10%  M: ±20%  N: ±30%  H: $^{+50}_{-10}$%

Z: $^{+80}_{-20}$%  P: $^{+100}_{-0}$%  R: $^{+30}_{-10}$%  F: ±1%

CONSTANT TERM

**• Carbon Resistor (¼W, ±5% Tolerance)**

QRD141J-□□□ (CONSTANT TERM.)

- □□□ 2.7Ω → QRD141J-2R7
- 1R0 → 1.0Ω
- 47kΩ → 47 x 10³ → QRD141J-473
- 9R7 → 9.7Ω

- 10□ → 10□ means 10 x 10□ (Ω)
- 82□ → 82□ means 82 x 10□ (Ω)

**• Ceramic Capacitor (50 Volts, ±5% Tolerance)**

QCS11HJ-□□□ (CONSTANT TERM.)

- □□□ 5pF → QCS11HJ-5R0
- 1R0 → 1.0pF
- 680pF → 68 x 10¹ → QCS11HJ-681
- 8R0 → 8.0pF
- 3300pF → 33 x 10² → QCS11HJ-332

- 10□ → 10□ means 10 x 10□ (pF)
- 88□ → 88□ means 88 x 10□ (pF)

# JVC C-2627(CA) SCHEMATIC DIAGRAM

## NOTICE

The voltage reading and waveform ware measured at each point with a multi-meter and an oscilloscope while receiving a service color bar signal with a sufficient sensitivity. The measurements were made with each VR under the condition just after the shipment. The figures of the signal circuits may be more or less different after adjustments, so use the figures simply for reference.

Multimeter used
DC 20kΩ/V
Given figures are all DC voltages.
Sweep speed of oscilloscope
H → 20 μS/div. V → 5 mS/div.
Others → sweep speed specified

Since the schematic diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

## SAFETY

FR ( FR ) denotes a fusible resistor which operates as a fuse. When replacing fusible resistors parts indicated with black shading ( ) in the circuit diagrams, be sure to ensure safety by using designated parts.
As to other parts too, use designated parts to maintain safety and performance.

## INDICATION OF PARTS SYMBOL

Inside board (Example) SX-1172A: R1209 → R209
Outside board (Example) R0001 → R01

## SCHEMATIC DIAGRAM INDICATION

**Resistor**

- Resistance value
  Without unit: [Ω] K : [kΩ] M : [MΩ]
- Rated allowable power
  Without indication : 1/6W
  Others Indicated
- Type
  Without indication : Carbon resistor
  OMR : Oxide metal film resistor
  UNF : Unflammable resistor
  MF R : Metal film resistor
  FR : Fusible resistor
- * Composition resistor 1/2 [W] is indicated as 1/2S or Comp.

**Capacitor**

- Capacitance
  Above 1 [pF] : Below 1 [μF]
- Withstand Voltage
  Without indication : DC 50 [V]
  Others : DC withstand voltage [V]
  AC indicated : AC withstand voltage [V]
- Indications for electrolytic capacitors are as follows.
  (Example)
  47/50 → capacitance [μF] / withstand voltage [V]
- Type
  Without indication : Ceramic capacitor
  MY : Mylar capacitor
  MM : Metalized mylar capacitor
  PP : Polypropylene capacitor
  MPP : Metalized polypropylene capacitor
  NP : Nonpolar electrolytic capacitor
  BP : Bipolar electrolytic capacitor
  TAN. : Tantalum capacitor

**Coil**

Without unit : [μH]

**Power Supply** * Each voltage reading specified.

: $B_1$ : $B_2$
: Standby Voltage

**Connection method**

: Connector, : Receptacle
: Wrapping or soldering

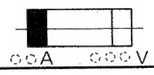
**Test point & GND. symbol.**

: Test point by miniature GT pin
: Only test point display
: Live (Primary) side ground

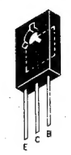
**Note for service**

**Use isolation transformer when hot chassis.**
The chassis and any sub-chassis contrained in some product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some product when the HOT chassis is exposed.

This mark shows a fast operating fuse, the letters indicated below show the rating.




## Basing of Transistor & ICs



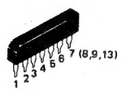

2SC3271

2SC2482V

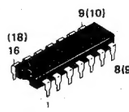
2SA933(Q,R)
2SC1906
2SC1740(Q,R)

2SD1455

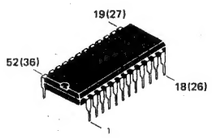
2SC2073



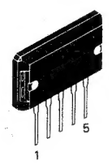

IC
μPC1490HA
MN12C25
MN1280
AN5862K



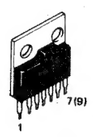

IC
M51346AP
μPC1486C




IC
MN15266JMC-1
TA8601AN



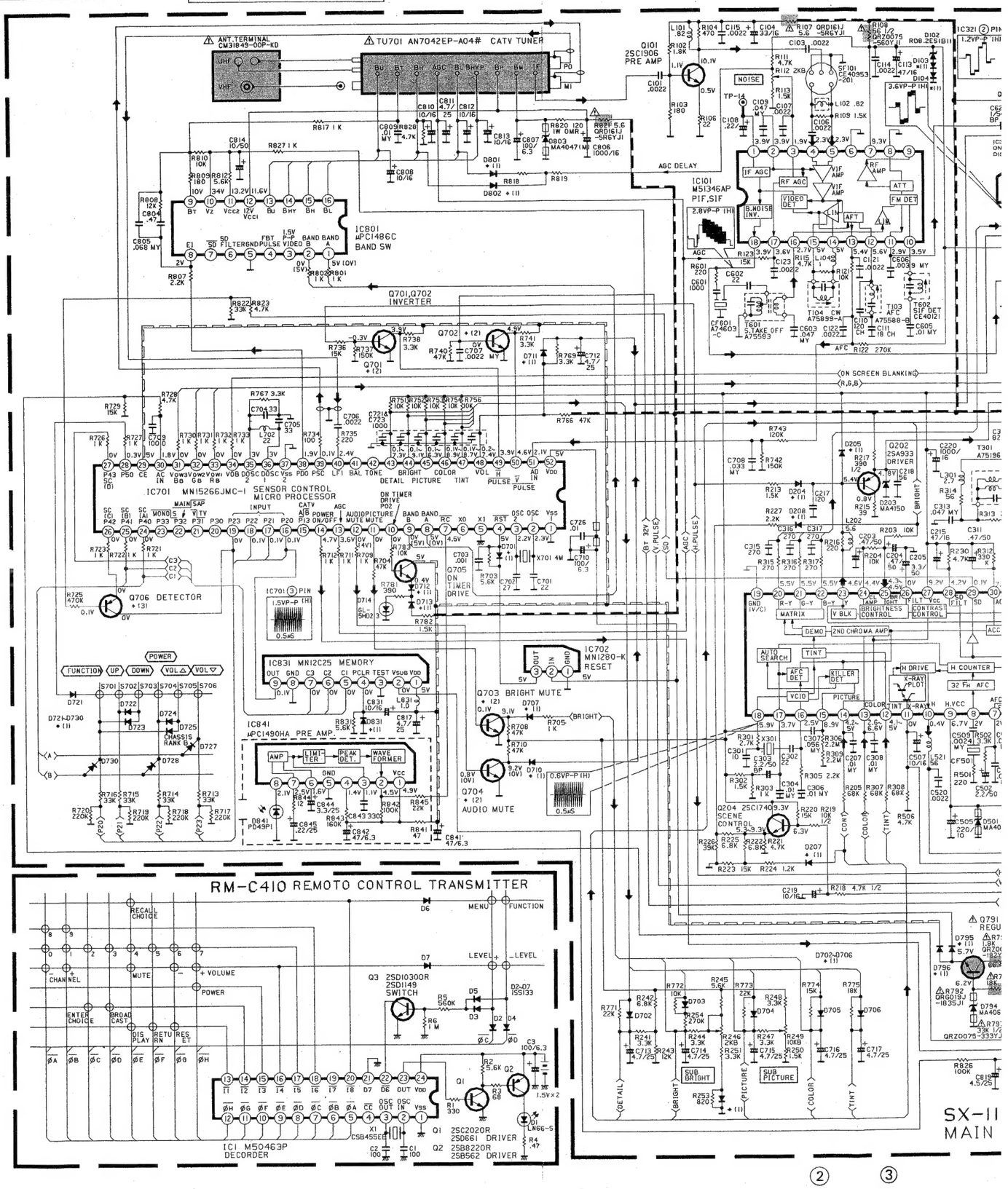

IC
STR3130




IC
AN5265
AN5521

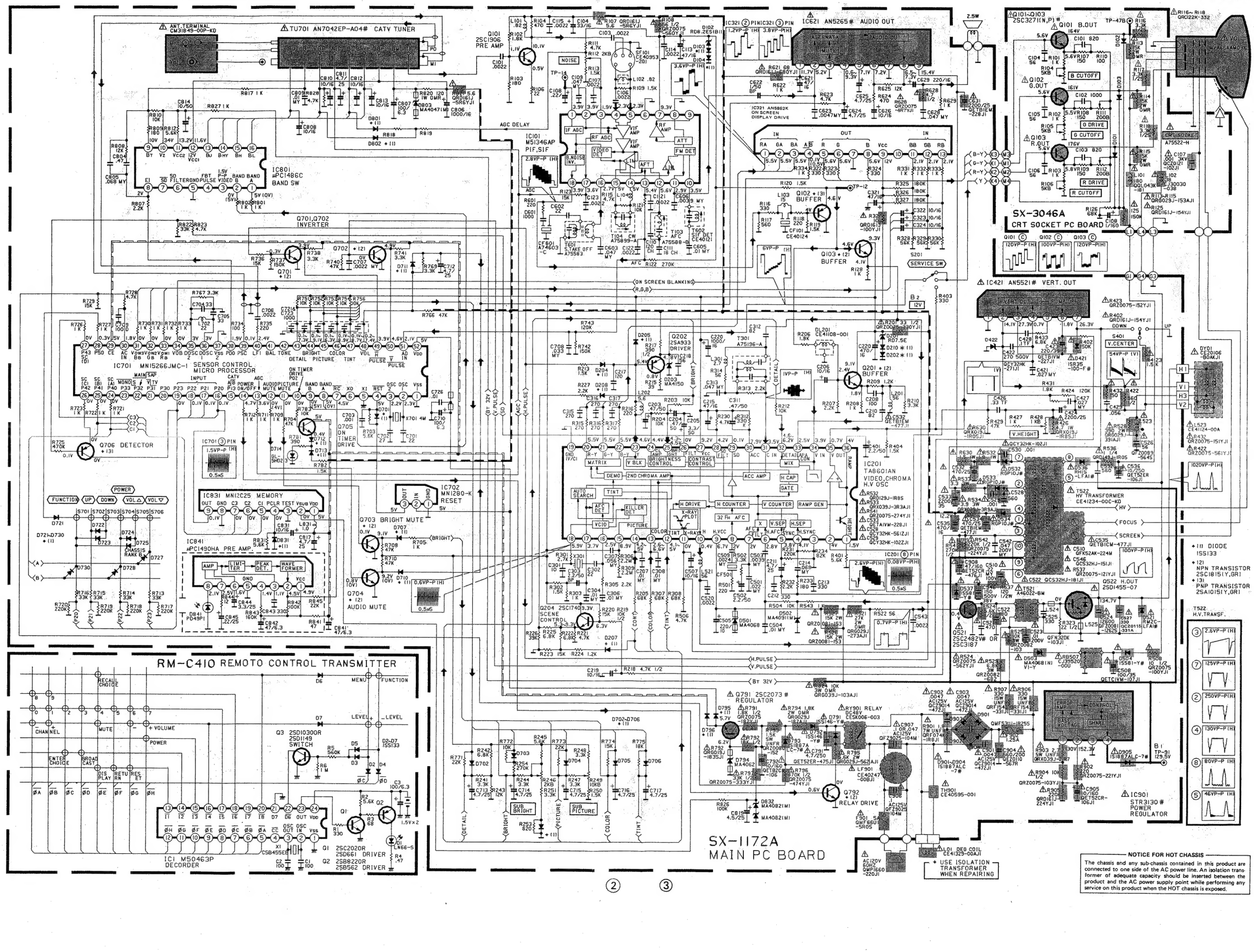


## SCHEMATIC DIAGRAM



# SCHEMATIC DIAGRAM






**NOTICE FOR HOT CHASSIS**

The chassis and any sub-chassis contained in this product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on this product when the HOT chassis is exposed.

# MAIN PCB BACK PATTERN (CK10550-D01)

ONLY LIVE GND (⊥)

CK10550-D01 GCMK-81X

DANGER



ALIGNM

## CHANNEL CHART

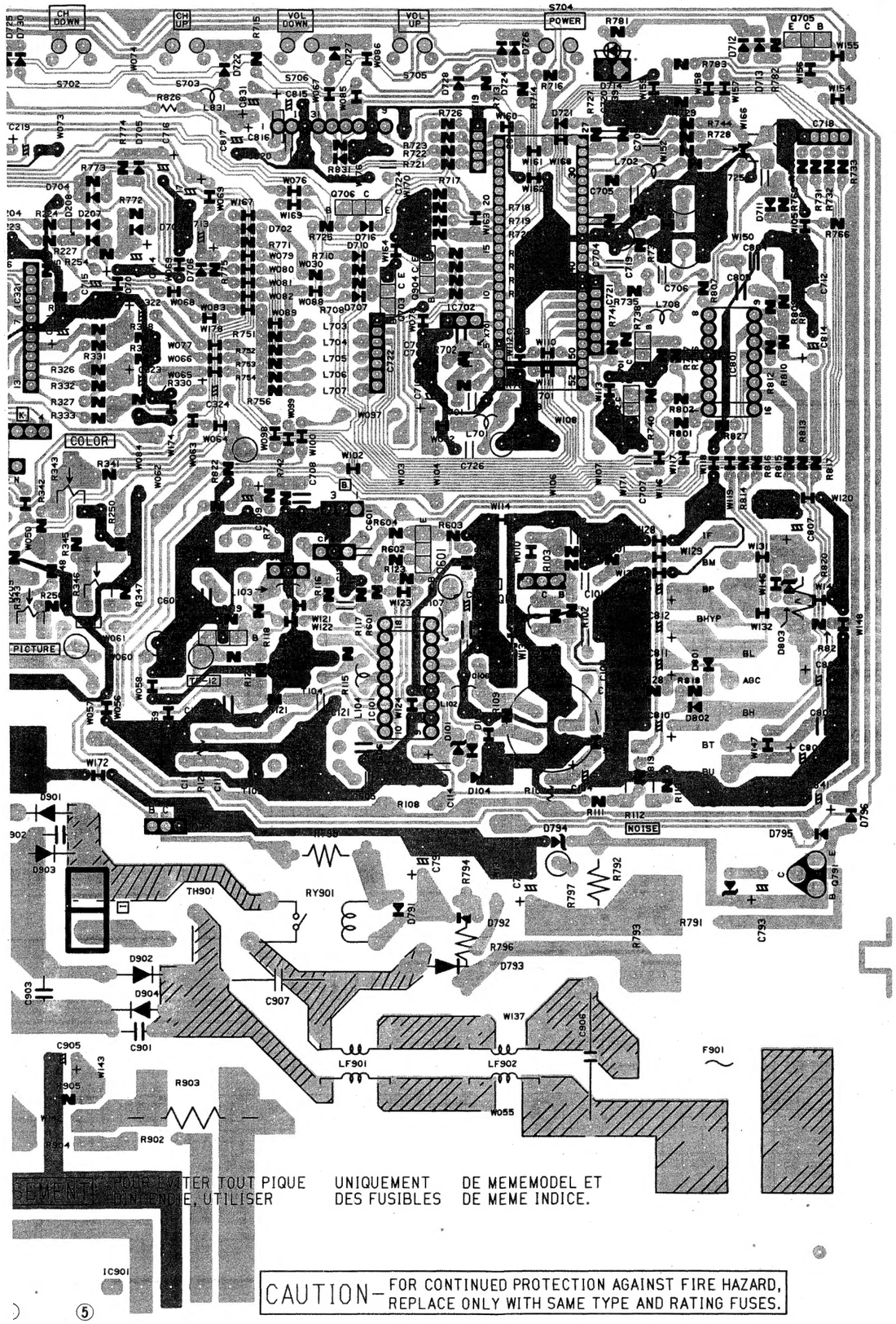
| MODE T | MODE V | MODE CATV | BAND | CHANNEL REAL | CHANNEL DISPLAY | TUNER BAND |
|---|---|---|---|---|---|---|
| ○ | ○ | | VL | | 02 | I |
| | | | | | 03 | |
| | | | | | 04 | |
| | | | | | 05 | |
| | | | | | 06 | |
| | | | VH | | 07 | II |
| | | | | | 08 | |
| | | | | | 09 | |
| | | | | | 10 | |
| | | | | | 11 | |
| | | | | | 12 | |
| | | | | | 13 | |
| | | | MID | A | 14 | |
| | | | | B | 15 | |
| | | | | C | 16 | |
| | | | | D | 17 | |
| | | | | E | 18 | |
| | | | | F | 19 | |
| | | | | G | 20 | |
| | | | | H | 21 | |
| | | | | I | 22 | |
| | | | SUPER | J | 23 | |
| | | | | K | 24 | |
| | | | | L | 25 | |
| | | | | M | 26 | |
| | | | | N | 27 | |
| | | | | O | 28 | |
| | | | | P | 29 | |
| | | | | Q | 30 | |
| | | | | R | 31 | |
| | | | | S | 32 | |
| | | | | T | 33 | |
| | | | | U | 34 | |
| | | | | V | 35 | |
| | | | | W | 36 | |
| | | | HYPER | W+1 | 37 | III |
| | | | | W+2 | 38 | |
| | | | | W+3 | 39 | |
| | | | | W+4 | 40 | |
| | | | | W+5 | 41 | |
| × | ○ | | | W+6 | 42 | |
| | | | | W+7 | 43 | |
| | | | | W+8 | 44 | |
| | | | | W+9 | 45 | |
| | | | | W+10 | 46 | |
| | | | | W+11 | 47 | |
| | | | | W+12 | 48 | |
| | | | | W+13 | 49 | |
| | | | | W+14 | 50 | |
| | | | | W+15 | 51 | |
| | | | | W+16 | 52 | |
| | | | | W+17 | 53 | |
| | | | | W+18 | 54 | |
| | | | | W+19 | 55 | |
| | | | | W+20 | 56 | |
| | | | | W+21 | 57 | |
| | | | | W+22 | 58 | |
| | | | | W+23 | 59 | |
| | | | | W+24 | 60 | |
| | | | | W+25 | 61 | |
| | | | | W+26 | 62 | |
| | | | | W+27 | 63 | |
| | | | | W+28 | 64 | |
| | | | | W+29 | 65 | |
| | | | VL | A-7 | 93 | |
| | | | | A-6 | 94 | |
| | | | SUB MID | A-5 | 95 | I |
| | | | | A-4 | 96 | |
| | | | | A-3 | 97 | |
| | | | | A-2 | 98 | II |
| | | | | A-1 | 99 | |
| | | | VL | A-8 | 01 | I |
| ○ | × | | UHF | 14 ~ 69 | | IV |

TOTAL 128CH — VHF 72CH / UHF 58CH

**NOTE:** TO RECEIVE THE SUBSCRIPTION OR PREMIUM PROGRAMMING FROM CERTAIN CABLE COMPANIES. SPECIAL ADAPTERS MAY BE REQUIRED.

AVERTISSEMENT POUR EVITER TOUT PIQUE UNIQUEMENT DE MEMEMODEL ET
EN CENDIE, UTILISER DES FUSIBLES DE MEME INDICE.

CAUTION— FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATING FUSES.


CH DOWN
CH UP
VOL DOWN
VOL UP
POWER
COLOR
PICTURE
TP-12
TP-55
TP-14
TP-91
NOISE
TH901
RY901
IC901
F901
LF901
LF902
W055
W137
W143
W172
W173
W174
W175
W176
W177
W178
W179
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